

5384 works that have been based on the Self-Organizing  
Map (SOM) method developed by Kohonen

Part II, authors from L to Z

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## References

- (1996). *Neural Networks: Producing Dependable Systems. Conference Proceedings. Held in Solihull (England) on November 2, 1995.*
- (1997a). *Self-Organizing Feature Maps. (Latest Citations from the INSPEC Database).* Published Search.
- (1997b). *WSOM'97: Workshop on Self-Organizing Maps. Held in Espoo, Finland on June 4–6, 1997. Proceedings.*
- (1999). Process unknowns cant hide from Kohonen. *Solid State Technology*, 42(6):28.
- (2001). Proceedings IEEE ICCV workshop on recognition, analysis, and tracking of faces and gestures in real-time systems. *IEEE Comput. Soc, Los Alamitos, CA, USA; 2001; viii+181 pp.*
- Laakso, S., Laaksonen, J., Koskela, M., and Oja, E. (2001). Self-organising maps of web link information. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 146–151. Springer.
- Laaksonen, J. (1997a). Local subspace classifier and local subspace SOM. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 32–37. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Laaksonen, J. (1997b). Subspace classifiers in recognition of handwritten digits. *Acta Polytechnica Scandinavica, Mathematics, Computing and Management in Engineering Series, No. 84*. Dr. Tech. Thesis, Helsinki University of Technology.
- Laaksonen, J., Hurri, J., Oja, E., and Kangas, J. (1998). Comparison of adaptive strategies for online character recognition. In Niklasson, L., Bodén, M., and Ziemke, T., editors, *ICANN 98. Proceedings of the 8th International Conference on Artificial Neural Networks*, volume 1, pages 245–50, London, UK. Springer-Verlag London.
- Laaksonen, J., Koskela, M., Laakso, S., and Oja, E. (2000). PicSOM—content-based image retrieval with self-organizing maps. *Pattern Recognition Letters*, 21(13–14):1199–1207.
- Laaksonen, J., Koskela, M., Laakso, S., and Oja, E. (2001). Self-organising maps as a relevance feedback technique in content-based image retrieval. *PATTERN ANALYSIS AND APPLICATIONS*, 4(2–3):140–152.
- Laaksonen, J., Koskela, M., and Oja, E. (1999a). Application of tree structured self-organizing maps in content-based image retrieval. In *ICANN99. Ninth International Conference on Artificial Neural Networks (IEE Conf. Publ. No.470)*, volume 1, pages 174–9, London, UK. IEE.
- Laaksonen, J., Koskela, M., and Oja, E. (1999b). Content-based image retrieval using self-organizing maps. In *Visual Information and Information Systems. Third International Conference, VISUAL'99. Proceedings (Lecture Notes in Computer Science Vol.1614)*, pages 541–8, Berlin, Germany. Springer-Verlag.
- Laaksonen, J., Koskela, M., and Oja, E. (1999c). PicSOM—a framework for content-based image database retrieval using self-organizing maps. In *Proc. of 11th Scandinavian Conference on Image Analysis (SCIA'99), Kangerlussuaq, Greenland, June 7–11*, pages 151–156.
- Laaksonen, J., Koskela, M., and Oja, E. (1999d). PicSOM: self-organizing maps for content-based image retrieval. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 4, pages 2470–3, Piscataway, NJ. IEEE Service Center.
- Laaksonen, J., Koskela, M., and Oja, E. (1999e). PicSOM: Self-organizing maps for content-based image retrieval. In *Proc. of International Joint Conference on Neural Networks (IJCNN'99), Washington, D.C., USA, July 10–16*. CD-ROM.

- Laaksonen, J. and Oja, E. (1996). Classification with learning k-nearest neighbors. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 3, pages 1480–3. IEEE, New York, NY, USA.
- Laaksonen, J. T. (1991). A new reliability-based phoneme segmentation method for the 'neural' phonetic typewriter. In *Proc. EUROSPEECH-91, 2nd European Conf. on Speech Communication and Technology*, volume I, pages 97–100, Genova, Italy. Assoc. Belge Acoust. ; Assoc. Italiana di Acustica; CEC; et al, Istituto Int. Comunicazioni.
- Labonte, G. (1998). A SOM neural network that reveals continuous displacement fields. In *1998 IEEE International Joint Conference on Neural Networks Proceedings. IEEE World Congress on Computational Intelligence*, volume 2, pages 880–4. IEEE, New York, NY, USA.
- Labonte, G. (2000). On a neural network that performs an enhanced nearest-neighbour matching. *PATTERN ANALYSIS AND APPLICATIONS*, 3(3):267–278.
- Ladage, R. N. and Carbone, K. (1992). Scatterer identification using neural networks. In *Proceedings of the IEEE 1992 National Aerospace and Electronics Conference, NAECON 1992*, volume 3, pages 900–4, New York, NY, USA. McDonnell Douglas Corp. , Richland, WA, USA, IEEE.
- Lades, M., Vorbruggen, J. C., Buhmann, J., Lange, J., Malsburg, C. v. d., Hurtz, R. P., and Konen, W. (1993). Distortion invariant object recognition in the dynamic link architectures. *IEEE Trans. on Computers*, 42(3):300–311.
- Lagus, K. (1997). Map of wsom'97 abstracts—alternative index. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 368–372. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Lagus, K. (1998). Generalizability of the WEBSOM method to document collections of various types. In *6th European Congress on Intelligent Techniques and Soft Computing. EUFIT '98*, volume 1, pages 210–14, Aachen, Germany. Verlag Mainz.
- Lagus, K. (2000). Text mining with the WEBSOM. *Acta-Polytechnica-Scandinavica,-Mathematics-and-Computing-Series. no.Ma110; 2000; p.1–54*, pages 1–54.
- Lagus, K. (2002). Text retrieval using self-organized document maps. *Neural Processing Letters*, 15(1):21–29.
- Lagus, K., Honkela, T., Kaski, S., and Kohonen, T. (1996a). Self-organizing maps of document collections: A new approach to interactive exploration. In Simoudis, E., Han, J., and Fayyad, U., editors, *Proceedings of the Second International Conference on Knowledge Discovery and Data Mining*, pages 238–243. AAAI Press, Menlo Park, California.
- Lagus, K., Honkela, T., Kaski, S., and Kohonen, T. (1996b). WEBSOM—a status report. In Alannder, J., Honkela, T., and Jakobsson, M., editors, *Proceedings of STeP'96, Finnish Artificial Intelligence Conference*, pages 73–78. Finnish Artificial Intelligence Society, Vaasa, Finland.
- Lagus, K., Honkela, T., Kaski, S., and Kohonen, T. (1999). WEBSOM for textual data mining. *Artificial-Intelligence-Review*, 13:345–64.
- Lagus, K. and Kaski, S. (1999). Keyword selection method for characterizing text document maps. In *ICANN99. Ninth International Conference on Artificial Neural Networks (IEE Conf. Publ. No.470)*, volume 1, pages 371–6, London, UK. IEE.
- Lagus, K., Kaski, S., Honkela, T., and Kohonen, T. (1996c). Browsing digital libraries with the aid of self-organizing maps. In *Proceedings of the Fifth International World Wide Web Conference WWW5, May 6–10, Paris, France*, volume Poster Proceedings, pages 71–79. EPGL.
- Laha, A. and Pal, N. R. (2001a). Dynamic generation of prototypes with self-organizing feature maps for classifier design. *PATTERN RECOGNITION*, 34(2):315–321.

- Laha, A. and Pal, N. R. (2001b). Some novel classifiers designed using prototypes extracted by a new scheme based on self-organizing feature map. *IEEE TRANSACTIONS ON SYSTEMS MAN AND CYBERNETICS PART B- CYBERNETICS*, 31(6):881–890.
- Lai, Y.-C., Yu, S.-S., and Chou, S.-L. (1993). Hybrid learning vector quantization. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2587–2590, Piscataway, NJ. JNNS, IEEE Service Center.
- Laine, S. J. (2001). Combining off-line and on-line information in process study using the self-organizing map (SOM). In *SMCiA/01. Proceedings of the 2001 IEEE Mountain Workshop on Soft Computing in Industrial Applications. IEEE, Piscataway, NJ, USA*, pages 71–6.
- Laitinen, N., Rantanen, J., Laine, S., Antikainen, O., Rasanen, E., Airaksinen, S., and Yliruusi, J. (2002). Visualization of particle size and shape distributions using self-organizing maps. *CHEMOMETRICS AND INTELLIGENT LABORATORY SYSTEMS*, 62(1):47–60.
- Lakany, H. M. (2000). Generic kinematic pattern for human walking. *Neurocomputing*, 35:27–54.
- Lakany, H. M. (2001). Human gait analysis using SOM. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 29–38. Springer.
- Lakany, H. M. and Hayes, G. M. (1997). Object localisation in 2d images using a temporal Kohonen network. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 148–151. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Lalonde, M. and Brault, J.-J. (1994). Comparison of sequences generated by a Self-Organizing Feature Map using Dynamic Programming. In *Proc. WCNN'94, World Congress on Neural Networks*, volume III, pages 110–116, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Lamar, M. V., Bhuiyan, M. S., and Iwata, A. (1999). Hand gesture recognition using morphological principal component analysis and an improved CombNET-II. In *IEEE SMC'99 Conference Proceedings. 1999 IEEE International Conference on Systems, Man, and Cybernetics.*, volume 4, pages 57–62, Piscataway, NJ. IEEE Service Center.
- Lamar, M. V., Bhuiyan, S., and Iwata, A. (2000). Hand gesture recognition using t-combNET: a net neural network model. *IEICE Transactions on Information and Systems*, 383-D(11):1986–1995.
- Lamberton, D. and Pagès, G. (1996). On the critical points of the 1-dimensional competitive learning vector quantization algorithm. In Verleysen, M., editor, *Proc. ESANN'96, European Symp. on Artificial Neural Networks*, pages 97–102, Bruges, Belgium. D facto conference services.
- Lambrinos, D., Scheier, C., and Pfeifer, R. (1995). Unsupervised classification of sensory-motor states in a real world artifact using a temporal Kohonen map. In Fogelman-Soulie, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 467–472, Nanterre, France. EC2.
- Lamedica, R., Prudenzi, A., Sforna, M., Caciotta, M., and Cencellli, V. O. (1996). A neural network based technique for short-term forecasting of anomalous load periods. *IEEE Transactions on Power Systems*, 11(4):1749–56.
- Lamirel, J. C. (2001). Using images for enhancing discovering task in a DL context. In Yeung, M., Li, C., and Lienhart, R. W., editors, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4315, pages 373–383. LORIA.
- Lampinen, J. (1991a). Distortion tolerant pattern recognition using invariant transformations and hierarchical SOFM clustering. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 99–104, Amsterdam, Netherlands. North-Holland.

- Lampinen, J. (1991b). Feature extractor giving distortion invariant hierarchical feature space. *Proc. SPIE—The Internatioanl Society for Optical Engineering*, 1469(pt. 1):832–842.
- Lampinen, J. (1992a). *Neural Pattern Recognition: Distortion Tolerance by Self-Organizing Maps*. PhD thesis, Lappennranta University of Technology, Lappeenranta, Finland.
- Lampinen, J. (1992b). On clustering properties of hierarchical self-organizing maps. In Alek-sander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume II, pages 1219–1222, Amsterdam, Netherlands. North-Holland.
- Lampinen, J. and Kostiainen, T. (1999). Overtraining and model selection with the self-organizing map. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1911–15, Piscataway, NJ. IEEE Service Center.
- Lampinen, J. and Kostiainen, T. (2000). Self-organizing map in data analysis. notes on over-fitting and overinterpretation. In *8th European Symposium on Artificial Neural Networks. ESANN"2000. Proceedings. D-Facto, Brussels, Belgium*, pages 239–44.
- Lampinen, J. and Kostiainen, T. (2002). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Generative Prob-ability Density Model in the Self-Organizing Map, pages 75–94. Physica-Verlag Heidelberg.
- Lampinen, J., Laaksonen, J., and Oja, E. (1997). *Neural Network Systems, Techniques and Appli-cations in Pattern Recognition. Research rept.*
- Lampinen, J. and Oja, E. (1989a). Fast self-organization by the Probing Algorithm. In *Proc. IJCNN'89, International Joint Conference on Neural Networks*, volume II, pages 503–507, Piscataway, NJ. IEEE Service Center.
- Lampinen, J. and Oja, E. (1989b). Self-organizing maps for spatial and temporal AR models. In Pietikäinen, M. and Röning, J., editors, *Proc. 6 SCIA, Scand. Conf. on Image Analysis*, pages 120–127, Helsinki, Finland. Suomen Hahmottunnistustutkimuksen seura r. y.
- Lampinen, J. and Oja, E. (1990a). Distortion tolerant feature extraction with Gabor functions and topological coding. In *Proc. INNC'90, Int. Neural Network Conf.*, volume I, pages 301–304, Dordrecht, Netherlands. Kluwer.
- Lampinen, J. and Oja, E. (1990b). Fast computation of Kohonen self-organization. In Fogelman-Soulie, F. and Herault, J., editors, *Neurocomputing: Algorithms, Architectures, and Applica-tions, NATO ASI Series F: Computer and Systems Sciences, vol. 68*, pages 65—74. Springer, Berlin, Heidelberg.
- Lampinen, J. and Oja, E. (1992). Clustering properties of hierarchical self-organizing maps. *J. Mathematical Imaging and Vision*, 2(2–3):261–272.
- Lampinen, J. and Oja, E. (1995). Distortion tolerant pattern recognition based on self-organizing feature extraction. *IEEE Trans. on Neural Networks*, 6(3):539–547.
- Lampinen, J. and Smolander, S. (1995). Fast associative mapping with look-up tables. In Fogelman-Soulie, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 315–320, Nanterre, France. EC2.
- Lampinen, J. and Smolander, S. (1996). Self-organizing feature extraction in recognition of wood surface defects and color images. *International Journal of Pattern Recognition and Artificial Intelligence*, 10:97–113.
- Lampinen, J. and Taipale, O. (1994). Optimization and simulation of quality properties in pa-per machine with neural networks. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 3812–3815, Piscataway, NJ. IEEE Service Center.
- Lan, T., Jiguang, J., and Dachuan, X. (1994). Artificial neural networks for power system transient security assessment. *Journal of Tsinghua University*, 34(4):62–8.

- Lancini, R. (1994). Image vector quantization by neural networks. In Yuhas, B. and Ansari, N., editors, *Neural Networks in Telecommunications*, pages 287–303, Dordrecht, Netherlands. Kluwer Academic Publishers.
- Lancini, R., Perego, F., and Tubaro, S. (1991). Some experiments on vector quantization using neural nets. In *Proc. GLOBECOM'91, Global Telecommunications Conf. Countdown to the New Millennium. Featuring a Mini-Theme on: Personal Communications Services (PCS)*., volume I, pages 135–139, Piscataway, NJ. IEEE, IEEE Service Center.
- Lancini, R. and Tubaro, S. (1995). Adaptive vector quantization for picture coding using neural networks. *IEEE Transactions on Communications*, 43(2–4):pt. 1.
- Lane, D. and Nolan, P. (1997). Application of pattern matching techniques to example based diagnosis. In Adey, R. A., Rzevski, G., and Teti, R., editors, *Applications of Artificial Intelligence in Engineering XII. [Full papers on CD ROM]*, pages 113–14. Comput. Mech. Publications, Southampton, UK.
- Lang, M. J. (1998). Application of a Kohonen network classifier in TeV gamma ray astronomy. *Journal of Physics G: Nuclear and Particle Physics*, 24:2279–2287.
- Lange, J. S. and Freiesleben, H. (1996). A parameter-free non-growing self-organizing map based upon gravitational principles: algorithm and applications. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 827–32. Springer-Verlag, Berlin, Germany.
- Lange, J. S., Fukunaga, C., Tanaka, M., and Bozek, A. (1999). Transputer self-organizing map algorithm for beam background rejection at the belle silicon vertex detector. *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*, 420(1–2):288–309.
- Lange, J. S., Hermanoski, P., and Freiesleben, H. (1997a). A parameter free self-organizing map for the analysis of pp-reactions at COSY. *Nuclear Instruments and Methods in Physics Research A*, 389:214–218.
- Lange, J. S., Schonmeier, P., and Freiesleben, H. (1997b). Parallelization of analyses using self-organizing maps with PVM. *Nuclear Instruments and Methods in Physics Research A*, 389:274–76.
- Langi, A., Ferens, K., Kinsner, W., Kect, T., and Sawatzky, G. (1994). Intelligent storm identification system using a hierarchical neural network. In Baird, C. R. and El-Hawary, M. E., editors, *1994 Canadian Conference on Electrical and Computer Engineering. Conference Proceedings*, volume 2, pages 501–4, New York, NY, USA. Dept. of Electr. & Comput. Eng. , Manitoba Univ. , Winnipeg, Man. , Canada, IEEE.
- Langinmaa, A. and Visa, A. (1990). Yhtenäinen menetelmä paperin laadunmittaukseen. *Tekniikan näköalat TEKES, Helsinki, Finland*, 5:10–11. (in Finnish).
- Larkin, A. B., Hines, E. L., and Thomas, S. M. (1994). The Euclidean memory array—a vector quantization technique for the processing of data from interview forms. *Neural Computing & Applications*, 2(1):53–57.
- Lau, K. T. and Lee, S. T. (1998). A CMOS winner takes all circuit for self organizing neural networks. *International Journal of Electronics*, 84:131–136.
- Lau, K. T., McAlernon, P., and Slater, J. M. (1999). Discrimination of chemically similar organic vapours and vapour mixtures using the kohonen network. *ANALYST*, 125(1):65–70.
- LaVigna, A. (1989). *Nonparametric Classification using Learning Vector Quantization*. PhD thesis, University of Maryland, College Park, MD.
- Lawrence, R. D., Almasi, G. S., and Rushmeier, H. E. (1999). A scalable parallel algorithm for self-organizing maps with applications to sparse data mining problems. *Data Mining and Knowledge Discovery*, 3:171–95.

- Lawrence, S., Giles, C. L., and Tsoi, A. C. (1996). Convolutional neural networks for face recognition. In *Proceedings 1996 IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pages 217–22. IEEE Computer Society Press, Los Alamitos, CA, USA.
- Lawrence, S., Giles, C. L., Tsoi, A. C., and Back, A. D. (1997). Face recognition: a convolutional neural-network approach. *IEEE Transactions on Neural Networks*, 8(1):98–113.
- Lazaro, A. S., Alonso, L., and Cardenoso, V. (1992). A double neural network for word recognition. In Hamza, M. H., editor, *Proc. Tenth IASTED International Conference Applied Informatics*, pages 5–8, Zurich, Switzerland. IASTED, Acta Press.
- Lazaro, S., Alonso, L., Alonso, C., de la Fuente, P., and Llamas, C. (1994). Isolated word recognition with a hybrid neural network. *International Journal of Mini and Microcomputers*, 16(3):134–40.
- Le, D. X., Thoma, G. R., and Wechsler, H. (1994). Document classification using connectionist models. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 5, pages 3009–14, New York, NY, USA. Lister Hill Center for Biomed. Commun. , Nat. Libr. of Med. , Bethesda, MD, USA, IEEE.
- Le, D. X., Thoma, G. R., and Wechsler, H. (1995). Classification of binary document images into textual or nontextual data blocks using neural network models. *Machine Vision and Applications*, 8(5):289–304.
- Le Bail, E. and Mitiche, A. (1989). Vector quantization of images using Kohonen neural network. *Traitemet du Signal*, 6(6):529–539. (in French).
- Le Beux, S., Cazuguel, G., Solaiman, B., and Roux, C. (1996). Automatic feature determination using unsupervised neural networks. application to image registration. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 3, pages 1406–9. IEEE, New York, NY, USA.
- Le Blanc, L. A., Hashemi, R. R., and Rucks, C. T. (2001). Pattern development for vessel accidents: A comparison of statistical and neural computing techniques. *Expert Systems with Applications*, 20(2):163–171.
- Leber, J.-F. (1993). *The Recognition of Acoustical Signals Using Neural Networks and an Open Simulator*. PhD thesis, Eidgenöss. Techn. Hochsch., Zürich, Switzerland.
- Lebert, E. and Phaf, R. H. (1993). Improving categorization with calm maps. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 59–62, London, UK. Springer.
- Lech, M. and Hua, Y. (1991). Vector quantization of images using neural networks and simulated annealing. In Juang, B. H., Kung, S. Y., and Kamm, C. A., editors, *Neural Networks for Signal Processing. Proc. of the 1991 IEEE Workshop*, pages 552–561, Piscataway, NJ. IEEE, IEEE Service Center.
- Lech, M. and Hua, Y. (1992). Image vector quantization using neural networks and simulated annealing. In *International Conference on Image Processing and its Applications*. IEE, London, UK.
- Leder, C. and Rehtanz, C. (2001). Electric power system's stability assessment and online-provision of control actions using self-organizing maps. In *Bio-Inspired Applications of Connectionism. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part II. (Lecture Notes in Computer Science Vol.2085)*. Springer-Verlag, Berlin, Germany, pages 704–10.
- Lee, C.-F. and Tai, W.-P. (1996). Portfolio selection with self-organizing maps. In Amari, S. I., Xu, L., Chan, L. W., King, I., and Leung, K. S., editors, *Progress in Neural Information Processing. Proceedings of the International Conference on Neural Information Processing*, volume 2, pages 716–21. Springer-Verlag, Singapore.

- Lee, C. H., Seong, D. S., and Park, K. H. (1993a). Face recognition using self-organizing map. *Journal of the Korea Information Science Society*, 20(11):1730–8.
- Lee, C.-H. and Yang, H.-C. (2001a). Developing an adaptive search engine for e-commerce using a web mining approach. In *Proceedings International Conference on Information Technology: Coding and Computing. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 604–8.
- Lee, C.-H. and Yang, H.-C. (2001b). Text mining of bilingual parallel corpora with a measure of semantic similarity. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 1, pages 470–475. Dept. of Information Management, Chang Jung University.
- Lee, D.-H. and Kim, Y. H. (1995). Image VQ using two-stage self-organizing feature map in the transform domain. *Journal of the Korean Institute of Telematics and Electronics*, 32B(3):57–65.
- Lee, D.-H. and Kim, Y. H. (1996a). Image vector quantization using a two-stage self-organizing feature map. *International Journal of Electronics*, 80(6):703–16.
- Lee, G., Kim, S., and Lee, J.-H. (1996a). Implementation of voice commandable multimodal korean text editor based on LVQ-HMM-FSN. *Journal of KISS[C] [Computing Practices]*, 2(2):206–17.
- Lee, H. S. and Younan, N. H. (2000). Investigation into unsupervised clustering techniques. In *Conference Proceedings—IEEE SOUTHEASTCON*, pages 124–130, Piscataway, NJ. Mississippi State Univ, IEEE.
- Lee, I.-B. and Lee, K.-Y. (1992). Neural network character recognition research. *Korea Information Science Soc. Review*, 10(2):27–38. (in Korean).
- Lee, J. A., Donckers, N., and Verleysen, M. (2001a). Recursive learning rules for SOMs. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 67–72. Springer.
- Lee, J. H., You, S. J., and Park, S. C. (2001b). New intelligent SOFM-based sampling plan for advanced process control. *Expert Systems with Applications*, 20(2):133–151.
- Lee, J. H., Yu, S. J., and Park, S. C. (2001c). Design of intelligent data sampling methodology based on data mining. *IEEE Transactions on Robotics and Automation*, 17(5):637–649.
- Lee, K. (1995). 3-D object recognition and restoration using an ultrasound sensor array. *Transactions of the Korean Institute of Electrical Engineers*, 44(5):671–7.
- Lee, K. C., Han, I., and Kwon, Y. (1996b). Hybrid neural network models for bankruptcy predictions. *Decision Support Systems*, 18(1):63–72.
- Lee, K. C. and Kim, J. (1994). Hybrid neural network-driven reasoning approach to bankruptcy prediction: comparison with MDA, ACLS, and neural network. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 3, pages 1787–92, New York, NY, USA. Center for Artificial Intelligence Res. , Kyonggi Univ. , Suwon, South Korea, IEEE.
- Lee, K. H., Park, Y. M., Kim, G. W., and Park, J. H. (2000a). An application of kohonen neural networks to dynamic security assessment. *Transactions-of-the-Korean-Institute-of-Electrical-Engineers,-A*, 49:253–8.
- Lee, K. Y., Lim, S. Y., and Cho, S. W. (2000b). Human iris recognition system using wavelet transform and LVQ. *Transactions-of-the-Korean-Institute-of-Electrical-Engineers,-D*, 49:389–98.
- Lee, M., Ban, S. W., Cho, J. K., Seo, C. J., and Jung, S. K. (1999). Modeling of saccadic movements using neural networks. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 4, pages 2386–9, Piscataway, NJ. IEEE Service Center.

- Lee, M. L. and Schneider, G. (2001). Scaffold architecture and pharmacophoric properties of natural products and trade drugs: Application in the design of natural product-based combinatorial libraries. *JOURNAL OF COMBINATORIAL CHEMISTRY*, 3(3):284–289.
- Lee, R. and Ozdamar, O. (1999). Analysis of wavelet preprocessed auditory brainstem responses with self-organizing feature maps. In *Proceedings of the First Joint BMES/EMBS Conference. 1999 IEEE Engineering in Medicine and Biology 21st Annual Conference and the 1999 Annual Fall Meeting of the Biomedical Engineering Society.*, volume 1, page 448, Piscataway, NJ. IEEE Service Center.
- Lee, S. and Pan, J. C.-J. (1996). Unconstrained handwritten numeral recognition based on radial basis competitive and cooperative networks with spatio-temporal feature representation. *IEEE Transactions on Neural Networks*, 7:455–474.
- Lee, S. and Shimoji, S. (1993). BAYESNET: Bayesian classification network based on biased random competition using Gaussian kernels. In *Proc. ICNN'93, International Conference on Neural Networks*, volume III, pages 1354–1359, Piscataway, NJ. IEEE, IEEE Service Center.
- Lee, S.-C., Wu, J.-M., and Liou, C.-Y. (1993b). Sequential self-organization for the traveling salesman problem. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 842–845, London, UK. Springer.
- Lee, S.-W. and Kim, J.-S. (1996b). Multi-lingual, multi-font and multi-size large-set character recognition using self-organizing neural network. In Reggia, J. A., Ruppin, E., and Berndt, R. S., editors, *Proceedings of the Third International Conference on Document Analysis and Recognition*, volume 1, pages 28–33. World Scientific, Singapore.
- Lee, S.-W. and Park, H.-S. (1996). Multi-lingual large-set oriental character recognition using a hierarchical neural network classifier. *Computer Processing of Oriental Languages*, 10(2):129–45.
- Lee, T. and Peterson, A. M. (1989). Implementing a self-development neural network using doubly linked lists. In *Proc. 13th Annual Int. Computer Software and Applications Conf.*, pages 672–679, Washington, DC. IEEE, IEEE Computer Society Press.
- Lee, T. C. and Scherson, I. D. (1990). Kohonen's self-organizing feature map in a partitioned parallel associative processor. In *Proc. Fourth Annual Parallel Processing Symp.*, volume I, pages 365–374, Piscataway, NJ. IEEE; California State Univ. Fullerton, IEEE Service Center.
- Lee, V. C. S. and Hung, S. L. (1993). Automatic cloud identification based on self-organizing map. In Schoen, J., editor, *Proceedings of the 1993 Summer Computer Simulation Conference. Twenty-Fifth Annual Summer Computer Simulation Conference*, pages 301–6, San Diego, CA, USA. Dept. of Comput. Sci. , City Polytech. of Hong Kong, Kowloon, Hong Kong, SCS.
- Lee, Y., Cherkassky, V., and Slagle, J. R. (1994). Adaptive fuzzy-rule-based classifier. In *Proc. WCNN'94, World Congress on Neural Networks*, volume I, pages 699–704, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Leem, C. S. and Dornfeld, D. A. (1996). Design and implementation of sensor-based tool-wear monitoring systems. *Mechanical Systems and Signal Processing*, 10(4):439–58.
- Leem, C. S., Dornfeld, D. A., and Dreyfus, S. E. (1995). A customized neural network for sensor fusion in on-line monitoring of cutting tool wear. *Transactions of the ASME. Journal of Engineering for Industry*, 117(2):152–9.
- Lehmann, C. (1993). Self-organisation of large feature maps using local computations: Analysis and VLSI integration. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, page 1082, London, UK. Springer.
- Lehmann, C. and Blayo, F. (1991). A VLSI implementation of a generic systolic synaptic building block for neural networks. In Delgado-Frias, J. G. and Moore, W. R., editors, *Proc. VLSI for Artificial Intelligence and Neural Networks*, pages 325–334, New York, NY. Plenum.

- Lehrasab, N. and Fararooy, S. (1996). Intelligent multiple sensor early failure warning system for train rotary door operator. In Amari, S. I., Xu, L., Chan, L. W., King, I., and Leung, K. S., editors, *IEE Colloquium on Target Tracking and Data Fusion (Digest No. 1996/253)*, pages 14/1–9. Springer-Verlag, Singapore.
- Lehtinen, J. C., Forsstrom, J., Koskinen, P., Penttila, T. A., Jarvi, T., and Anttila, L. (1997). Visualization of clinical data with neural networks: Case study: Polycystic ovary syndrome. *International Journal of Medical Informatics*, 44(2):145–155.
- Leinonen, L. (1999). Self-organizing map in categorization of voice qualities. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 329–334. Elsevier, Amsterdam.
- Leinonen, L., Hiltunen, T., Kangas, J., Juvas, A., and Rihkanen, H. (1993a). Detection of dysphonia by pattern recognition of speech spectra. *Scand. J. Log. Phon.*, 18:159–167.
- Leinonen, L., Hiltunen, T., Laakso, M.-L., Rihkanen, H., and Poppius, H. (1997a). Categorization of voice disorders with six perceptual dimensions. *Folia Phoniatrica et Logopaedica*, 49:9–20.
- Leinonen, L., Hiltunen, T., Linnankoski, I., and Laakso, M. L. (1997b). Expression of emotional-motivational connotations with a one-word utterance. *Journal of the Acoustical Society of America*, 102(3):1853–63.
- Leinonen, L., Hiltunen, T., Torkkola, K., and Kangas, J. (1993b). Self-organized acoustic feature map in detection of fricative-vowel coarticulation. *J. Acoust. Soc. of America*, 93(6):3468–3474.
- Leinonen, L., Kangas, J., and Torkkola, K. (1992a). Äänihääriöiden tunnistus itseorganisoivalla kartalla. *Tekniikka logopediassa ja foniatriassa*, 26:41–45. (in Finnish).
- Leinonen, L., Kangas, J., Torkkola, K., and Juvas, A. (1991a). Pattern recognition of hoarse and healthy voices by the self-organizing map. In Kohonen, T., Mäkitörmä, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1385–1388, Amsterdam, Netherlands. North-Holland.
- Leinonen, L., Kangas, J., Torkkola, K., and Juvas, A. (1992b). Dysphonia detected by pattern recognition of spectral composition. *J. Speech and Hearing Res.*, 35:287–295.
- Leinonen, L., Kangas, J., Torkkola, K., Juvas, A., Rihkanen, H., and Mujunen, R. (1991b). Itseorganisoituvan kartan äänen ja ääntämisen kuvantamisessa. *Suomen Logopedis-Foniatriinen Aikakauslehti*, 10(2):4–9. (in Finnish).
- Leinonen, L., Mujunen, R., Kangas, J., and Torkkola, K. (1993c). Acoustic pattern recognition of fricative-vowel coarticulation by the self-organizing map. *Folia Phoniatrica*, 45:173–181.
- Leinonen, L., Valkealahti, K., and Rihkanen, H. (1996). Visual imaging of voice quality with the self-organizing map. *Suomen logopedis-foniatriinen aikakauslehti*, 16:89–96.
- Leisenberg, M. (1994). The intelligent bionic ear—a new concept of an adaptive, artificial neural net based cochlear implant system using speaker independent signal representation. In *Proc. IMACS Int. Symp. on Signal Processing, Robotics and Neural Networks*, pages 594–597, Lille, France. IMACS.
- Leisenberg, M. (1995a). Hearing aids for the profoundly deaf based on neural net speech processing. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 5, pages 3535–8, New York, NY, USA. Inst. of Sound & Vibration Res. , Southampton Univ. , UK, IEEE.
- Leisenberg, M. (1995b). Unsupervised neural networks for speech perception with cochlear implant systems for the profoundly deaf. In Mira, J. and Sandoval, F., editors, *From Natural to Artificial Neural Computation. International Workshop on Artificial Neural Networks. Proceedings*, pages 462–70. Springer-Verlag, Berlin, Germany.

- Leivian, R., Peterson, W., and Gardner, M. (1997). Cordex: a knowledge discovery tool. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 63–68. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Leman, M. and van Renterghem, P. (1989). Transputer implementation of the Kohonen feature map for a music recognition task. Technical Report SM-IPEM-#17, University of Ghent, Inst. for Psychoacoustics and Electronic Music, Ghent, Belgium.
- Lemos, R. A., Nakamura, M., and Kuwano, H. (1993). Applying a self-organizing map to sensor-array characterization. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 2009–2012, Piscataway, NJ. JNNS, IEEE Service Center.
- Lendasse, A., Lee, J., Wertz, V., and Verleysen, M. (2000). Time series forecasting using CCA and kohonen maps. application to electricity consumption. In *8th European Symposium on Artificial Neural Networks. ESANN"2000. Proceedings. D-Facto, Brussels, Belgium*, pages 329–34.
- Lendasse, A., Verleysen, M., de Bodt, E., Gregoire, P., and Cottrell, M. (1998). Forecasting time-series by Kohonen classification. In Verleysen, M., editor, *Proceedings of ESANN'98*, pages 221–226, Bruxelles. Editions D Facto.
- Lennon, S. and Ambikairajah, E. (1992). A two-layer Kohonen neural network using a cochlear model as a front-end processor for a speech recognition system. In *Neural Networks for Signal Processing II. Proceedings of the IEEE-P Workshop*, pages 139–48, New York, NY, USA. Dept. of Electron. Eng. , Regional Tech. Coll. , Athlone, Ireland, IEEE.
- Lensu, A. and Koikkalainen, P. (1998). Analysis of multi-choice questionnaires through self-organizing maps. In *ICANN 98. Proceedings of the 8th International Conference on Artificial Neural Networks*, volume 1, pages 305–10, London. Springer-Verlag.
- Lensu, A. and Koikkalainen, P. (1999). Similar document detection using self-organizing maps. In *1999 Third International Conference on Knowledge-Based Intelligent Information Engineering Systems. Proceedings.*, pages 174–7, Piscataway, NJ. IEEE Service Center.
- Lescure, P., Meas Yedid, V., Dupoisot, H., and Stamon, G. (1999). Color segmentation of biological microscopic images. In *Proceedings of the SPIE—The International Society for Optical Engineering*, volume 3647, pages 182–93.
- Lesteven, S., Poincot, P., and Murtagh, F. (1996). Neural networks and information extraction in astronomical information retrieval. *Vistas in Astronomy*, 40(pt. 3):395–400. (Workshop on Strategies and Techniques of Information for Astronomy Conf. Date: 21–22 June 1996 Conf. Loc: Strasbourg, France).
- Leung, C. S. and Chan, L. W. (1997). Transmission of vector quantized data over a noisy channel. *IEEE Transactions on Neural Networks*, 8(3):582–589.
- Leung, C. S. and Chan, L. W. (1999). Design of trellis-coded vector quantizers using Kohonen maps. *Neural Networks*, 12(6):907–914.
- Leung, T. S., White, P. R., Collis, W., Brown, E., and Salmon, A. (1999). Characterization of paediatric heart murmurs using self-organizing map. In *Annual International Conference of the IEEE Engineering in Medicine and Biology—Proceedings*, volume 2, page 926.
- Leung, W. K. (2001). Solving application problems involving large real type data sets by single layered backpropagation networks. *Neural-Network-World*, 11:249–57.
- Lewis, O. M., Ware, J. A., and Jenkins, D. (1997). A novel neural network technique for the valuation of residential property. *Neural Computing & Applications*, 5(4):224–9.
- Lewis, O. M., Ware, J. A., and Jenkins, D. H. (2001). Identification of residential property submarkets using evolutionary and neural computing techniques. *NEURAL COMPUTING & APPLICATIONS*, 10(2):108–119.

- Li, B., Chellappa, R., Zheng, Q., Der, S., Nasrabadi, N., Chan, L., and Wang, L. (2001a). Experimental evaluation of FLIR ATR approaches—a comparative study. *Computer Vision and Image Understanding*, 84(1):5–24.
- Li, D., Song, Y., and Ye, F. (2001b). On line monitoring of burning through for short circuit CO<sub>2</sub> arc welding based on the self-organize feature map neural networks. *Chinese Journal of Mechanical Engineering (English Edition)*, 14(2):106–110.
- Li, F. and Chen, C. (2000). Sizing a flexible spinning reserve level with artificial neural networks. In *2000 IEEE Power Engineering Society Winter Meeting. Conference Proceedings. IEEE, Piscataway, NJ, USA*, volume 2, pages 1005–10.
- Li, J. and Manikopoulos, C. N. (1989). Multi-stage vector quantization based on the self-organization feature maps. *Visual Communications and Image Processing IV*, 1199:1046–1055.
- Li, J., Najmi, A., and Gray, R. M. (2000a). Image classification by a two-dimensional hidden Markov model. *IEEE Transactions on Signal Processing*, 48(2):517–533.
- Li, K.-P. (1991). A learning algorithm with multiple criteria for self-organizing feature maps. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1353–1356, Amsterdam, Netherlands. North-Holland.
- Li, K. Q.-Q. and Pose, R. (1992). Ordered search—a new method of image compression with Kohonen networks. In *ICARCV '92. Second International Conference on Automation, Robotics and Computer Vision*, volume 1, pages NW-1. 7/1–5, Singapore. Dept. of Comput. Sci. , Monash Univ. , Clayton, Vic, Australia, Nanyang Technol. Univ.
- Li, N. and Li, Y. F. (2001a). Feature encoding for color image segmentation. In *Proceedings-of-the-SPIE –The-International-Society-for-Optical-Engineering. vol.4550*, volume 4550, pages 127–31.
- Li, R. and Kim, J. (2000). Image compression using fast transformed vector quantization. In *Proceedings 29th Applied Imagery Pattern Recognition Workshop. IEEE Comput. Soc, Los Alamitos, CA, USA*.
- Li, R., Sherrod, E., and Si, H. (1995). Image vector quantization using an improved Self-Organizing neural network approach. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 548–551. INNS.
- Li, R.-P. and Mukaidono, M. (1995). Proportional learning law and local minimum escape in clustering networks. In Zhong, Y., Yang, Y., and Wang, M., editors, *Proceedings of International Conference on Neural Information Processing (ICONIP '95)*, volume 1, pages 192–5, Beijing, China. Dept. of Comput. Sci. , Meiji Univ. , Kawasaki, Japan, Publishing House of Electron. Ind.
- Li, R. Y., Kim, J., and Al-Shamakhi, N. (2002a). Image compression using transformed vector quantization. *Image and Vision Computing*, 20(1):37–45.
- Li, R. Y. and Lebby, G. L. (1997). A modified approach for constructing the self-organized layer in a multilayer feedforward neural network. *Information Sciences*, 98:69–81.
- Li, S. and Li, T. (2001b). Interoperable web-based data mining system by java distributed object computing. In *Proceedings of the Hawaii International Conference on System Sciences*, page 68.
- Li, S. and Wang, Y. (2001). The segmentation of kiln flame image based on neural networks. *Chinese-Journal-of-Scientific-Instrument*, 22:10–12.
- Li, S.-T. (2002). A web-aware interoperable data mining system. *Expert Systems with Applications*, 22(2):135–146.

- Li, S. T., Chou, S. W., and Pan, J. J. (2000b). Multi-resolution spatio-temporal data mining for the study of air pollutant regionalization. In *Proceedings of the Hawaii International Conference on System Sciences*, page 33.
- Li, S. T. and Li, T. S. (2001c). Interoperable web-based data mining system by java distributed object computing. In *Proceedings of the 34th Annual Hawaii International Conference on System Sciences. IEEE Comput. Soc, Los Alamitos, CA, USA*.
- Li, S. Z. (1993). Self-organization of surface shapes. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1173–1176, Piscataway, NJ. JNNS, IEEE Service Center.
- Li, T., Fang, L., and Jennings, A. (1991). Self-organizing neural trees for hierarchical classification and vector quantization. Technical Report CS-NN-91-5, Concordia University, Department of Computer Science, Montreal, Quebec, Canada.
- Li, T., Klasa, S., and Tang, Y. Y. (1994). Data mapping for parallel programs with changing size windows. In *Seventh International Conference on Parallel and Distributed Computing Systems*, pages 640–3. Int. Soc. Comput. & Their Appl. -ISCA, Raleigh, NC, USA.
- Li, T. and Tao, L. (1995). Topological feature maps on parallel computers. *International Journal of High Speed Computing*, 7(4):531–46.
- Li, W. (1999). Parallel self-organizing map. *Transactions of Nonferrous Metals Society of China (English Edition)*, 9(1):172–180.
- Li, W. and da Silva, N. C. (1999a). Implementation of parallel self-organizing map for the classification of images. In *Proceedings of the SPIE—The International Society for Optical Engineering*, volume 3722, pages 284–92.
- Li, W. and da Silva, N. C. (1999b). A study of parallel neural networks. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 2, pages 1113–16, Piscataway, NJ. IEEE Service Center.
- Li, W., Parkin, R. M., Coy, J., and Gu, F. (2002b). Acoustic based condition monitoring of a diesel engine using self-organising map networks. *Applied Acoustics*, 63(7):699–711.
- Li, X., Gasteiger, J., and Zupan, J. (1993). On the topology distortion in self-organizing feature maps. *Biological Cybernetics*, 70(2):189–198.
- Li, Y.-M. and Jabri, M. A. (1992). Global routing using a neural network strategy. In *ICARCV '92. Second International Conference on Automation, Robotics and Computer Vision*, volume 1, pages INV-9. 3/1–5, Singapore. Syst. Eng. & Design Autom. Lab. , Sydney Univ. , NSW, Australia, Nanyang Technol. Univ.
- Liang, R.-H. and Hsu, Y.-Y. (1994). Hydroelectric generation scheduling using self-organizing feature maps. *Electric Power Systems Research*, 30(1):1–8.
- Liang, R.-H. and Hsu, Y.-Y. (1995). A hybrid artificial neural network-differential dynamic programming approach for short-term hydro scheduling. *Electric Power Systems Research*, 33(2):77–86.
- Liassidou, F., Michaelides, S. C., Neocleous, S. C., and Schizas, C. N. (1999). Identification of synoptic patterns on weather charts by artificial neural networks. In *Engineering Applications of Neural Networks. Proceedings of the 5th International Conference on Engineering Applications of Neural Networks (EANN'99)*, pages 247–52, Torun, Poland. Wydawnictwo Adam Marszalek.
- Lieberman, M. A. and Patil, R. B. (1997). Evaluation of learning vector quantization to classify cotton trash. *Optical Engineering*, 36(3):914–21.

- Lighttowler, N., Spracklen, C. T., and Allen, A. R. (1997). A modular approach to implementation of the self-organising map. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 130–135. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Lighttowler, N., Allen, A. R., Grant, H., Hendry, D. C., and Spracklen, C. T. (1999). The modular map. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 2, pages 851–6, Piscataway, NJ. IEEE Service Center.
- Likas, A. (1999). A reinforcement learning approach to online clustering. *Neural Computation*, 11:1915–32.
- Likhovidov, V. (1997). Variational approach to unsupervised learning algorithms of neural networks. *Neural Networks*, 10(2):273–89.
- Lim, K.-T., Nam, Y.-S., Kim, H.-K., and Chien, S.-I. (2000). Classification of handwritten numerals using modular neural networks. In *Proceedings of the International Conference on Artificial Intelligence. IC-AI'2000. CSREA Press, Athens, GA, USA*, volume 2, pages 875–81.
- Limboonruang, P., Thipakorn, B., and Demeechai, T. (2000). Zero redundancy error protection of images using self-organizing-maps. In *IEEE APCCAS 2000. 2000 IEEE Asia-Pacific Conference on Circuits and Systems. Electronic Communication Systems. IEEE, Piscataway, NJ, USA*, pages 89–92.
- Lin, C.-C., Duann, J.-R., Cheng, H.-C., and Chen, J.-H. (1997a). A cascade algorithm combined Kohonen feature map with fuzzy c-means applied in MR brain image segmentation. In Boom, H., Robinson, C., Rutten, W., Neuman, M., and Wijkstra, H., editors, *Proceedings of the 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. ‘Bridging Disciplines for Biomedicine’*, volume 3, pages 1079–80. IEEE, New York, NY, USA.
- Lin, C. T., Chen, H. C., and Nunamaker, J. F. (1999). Verifying the proximity and size hypothesis for self-organizing maps. *JOURNAL OF MANAGEMENT INFORMATION SYSTEMS*, 16(3):57–70.
- Lin, C. T., Lee, Y. C., and Pu, H. C. (2000). Satellite sensor image classification using cascaded architecture of neural fuzzy network. *IEEE Transactions on Geoscience and Remote Sensing*, 38:1033–43.
- Lin, C. W., Der, S., Nasrabi, N. M., and Rizvi, S. A. (1998a). Automatic target recognition using neural networks. In *Proceedings of the SPIE—The International Society for Optical Engineering*, volume 3466, pages 278–89.
- Lin, H., Wang, X., Lu, J., and Yahagi, T. (2001). Analysis of a neural detector based on self-organizing map in a 16 QAM system. *IEICE Transactions on Communications*, E84-B(9):2628–2634.
- Lin, J.-H. and Isik, C. (1996). A maximum entropy radial basis function network based neuro-fuzzy controller. In *Proceedings of the Fifth IEEE International Conference on Fuzzy Systems. FUZZ-IEEE '96*, volume 1, pages 156–61. IEEE, New York, NY, USA.
- Lin, J.-H. and Isik, C. (1997). Fuzzy modeling and control based on maximum entropy self-organizing nets and cell state mapping. In Isik, C. and Cross, V., editors, *1997 Annual Meeting of the North American Fuzzy Information Processing Society—NAFIPS*, pages 45–50. IEEE, New York, NY, USA.
- Lin, J. H. J., Chang, J. S., and Chiueh, T. D. (1998b). Heterogeneous recurrent neural networks. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, (3):489–499.
- Lin, J. K., Grier, D. G., and Cowan, J. D. (1997b). Faithful representation of separable distributions. *Neural Computation*, 9:1305–1320.

- Lin, J. K., Grier, D. G., and Cowan, J. D. (1997c). Source separation and density estimation by faithful equivariant SOM. In Mozer, M. C., Jordan, M. I., and Petsche, T., editors, *Advances in Neural Information Processing Systems 9*, pages 536–542. The MIT Press, Cambridge, MA.
- Lin, K. H. C., Chen, T.-B., and Soo, V.-W. (1995a). Neural network learning and encoding of thematic role assignments in parsing of simple Chinese sentences. *Journal of Information Science and Engineering*, 11(1):109–26.
- Lin, P. and Jules, K. (2001). An intelligent system for monitoring the microgravity environment quality on-board the international space station. In *Conference Record—IEEE Instrumentation and Measurement Technology Conference*, volume 3, pages 2117–2122. Cleveland State University, Mechanical Engineering Dept.
- Lin, S. and Si, J. (1996). Convergence properties of SOFM algorithm for vector quantization. In Touretzky, D. S., Mozer, M. C., and Hasselmo, M. E., editors, *Proceedings of 1997 IEEE International Symposium on Circuits and Systems. Circuits and Systems in the Information Age. ISCAS '97*, volume 1, pages 509–12. MIT Press, Cambridge, MA, USA.
- Lin, S. and Si, J. (1997). Weight convergence and weight density of the multi-dimensional SOFM algorithm. In *Proceedings of the 1997 American Control Conference*, volume 4, pages 2404–8. American Autom. Control Council, Evanston, IL, USA.
- Lin, S. and Si, J. (1998). Weight-value convergence of the SOM algorithm for discrete input. *Neural Computation*, 10(4):807–14.
- Lin, S., Si, J., and Schwartz, A. B. (1995b). Self-organization of motor cortical discharge patterns. In Fogelman-Soulié, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume I, pages 133–138, Nanterre, France. EC2.
- Lin, S., Si, J., and Schwartz, A. B. (1996). Self-organizing model of motor cortical activities during drawing. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2718:540–51.
- Lin, S., Si, J., and Schwartz, A. B. (1997d). Self-organization of firing activities in monkey's motor cortex: trajectory computation from spike signals. *Neural Computation*, 9(3):607–21.
- Lin, T. Y. and Tseng, C. H. (2000). Optimum design for artificial neural networks: An example in a bicycle derailleur system. *Engineering Applications of Artificial Intelligence*, 13(1):3–14.
- Lin, W. C., Tsao, E. C. K., and Chen, C. T. (1992). Constraint satisfaction neural networks for image segmentation. *Pattern Recognition*, 25(7):679–693.
- Lin, W. S. and Tsai, C. H. (2001). Self-organizing fuzzy control of multi-variable systems using learning vector quantization network. *Fuzzy Sets and Systems*, 124(2):197–212.
- Lin, X. (1992). Visualization for the document space. In *Proceedings of Visualization '92*, pages 274–81, Los Alamitos, CA, USA. Center for Comput. Legal Res. , Pace Univ. , White Plains, NY, USA, IEEE Computer Society Press.
- Lin, X. (1997). Map displays for information retrieval. *Journal of the American Society for Information Science*, 48:40–54.
- Lin, X., Soergel, D., and Marchionini, G. (1991). A Self-organizing semantic map for information retrieval. In *Proc. 14th. Ann. Int. ACM/SIGIR Conf. on R & D In Information Retrieval*, pages 262–269.
- Lindroos, M. (1992). Itseorganisoituvan neuraaliverkon laitteistototeutus. Technical Report 10–92, Tampere University of Technology, Electronics Laboratory, Tampere, Finland. (in Finnish).
- Lindsey, C. S. and Stromberg, M. (2000). Image classification using the frequencies of simple features. *Pattern Recognition Letters*, 21(3):265–268.

- Ling, D., Junyi, L., and Yugeng, X. (1992). Generalized self-organized learning in neural network modelling for nonlinear plants. *Acta Electronica Sinica*, 20(10):56–60. (in Chinese).
- Linsker, R. (1987). Towards an organizing principle for a layered perceptual network. In Anderson, D. Z., editor, *Neural Information Processing Systems*, pages 485–494. Amer. Inst. Phys., New York, NY.
- Liong, S.-Y., Lim, W.-H., Kojiri, T., and Hori, T. (2000). Advance flood forecasting for flood stricken bangladesh with a fuzzy reasoning method. *Hydrological Processes*, 14(3):431–448.
- Liou, C.-Y. and Shiah, C.-Y. (1993). Perception of speech signals using self-organization on linear neuron array. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume I, pages 251–254, Piscataway, NJ. JNNS, IEEE Service Center.
- Liou, C.-Y. and Tai, W.-P. (1993). Exploring orderliness by self-organization. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1618–1621, Piscataway, NJ. JNNS, IEEE Service Center.
- Liou, C. Y. and Tai, W. P. (1999). Conformal self-organization for continuity on a feature map. *Neural Networks*, 12(6):893–905.
- Liou, C. Y. and Wu, J. M. (1996). Self-organization using potts models. *Neural Networks*, 9(4):671–684.
- Liou, C.-Y. and Yang, H.-C. (1993). Spatial topology distance for handprinted character recognition. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93 International Conference on Artificial Neural Networks*, pages 918–921, London. Springer.
- Liou, C.-Y. and Yang, H.-C. (1996). Handprinted character recognition based on spatial topology distance measurement. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 18:941–945.
- Liou, R.-J., Azimi-Sadjadi, M. R., and Reinke, D. L. (1994). Detection and classification of cloud data from geostationary satellite using artificial neural networks. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 4327–4332, Piscataway, NJ. IEEE Service Center.
- Lippmann, R. P. (1987). An introduction to computing with neural nets. *IEEE Acoustics, Speech and Signal Processing Magazine*, pages 4–22.
- Lippmann, R. P. (1988a). Neural nets for computing. In *Proc. ICASSP-88, International Conference on Acoustics, Speech and Signal Processing*, pages 1–6, Piscataway, NJ. IEEE, Acoustics, Speech and Signal Processing Soc, New York, NY, USA, IEEE Service Center.
- Lippmann, R. P. (1988b). A survey of neural network models. In Kartashev, L. P. and Kartashev, S. I., editors, *Proc. ICS'88, Third International Conference on Supercomputing*, volume I, pages 35–40, St. Petersburg, FL. Int. Supercomputing Inst.
- Lippmann, R. P. (1989). Pattern classification using neural networks. *IEEE Communications Magazine*, 27(11):47–50.
- Lipponen, S., Mäkilälio, T., Tulppo, M., and Röning, J. (1998). Finding structure in fitness data. In *Proc. 2nd International Conference on The Practical Application of Knowledge Discovery and Data Mining, March 25–27, London, UK*, pages 101–109.
- Liqin, S. and Feihu, Q. (1995). Color spatial quantization and compression method based on palette technique. *Acta Electronica Sinica*, 23(9):103–5.
- Liqin, S. and Feihu, Q. (1996). Color spatial quantization and compression technique based on palette. *High Technology Letters [English Language Edition]*, 2(1):51–4.
- Lirov, Y. (1991). Optimal dimensioning of counterpropagation neural networks. In *IJCNN'91, International Joint Conference on Neural Networks*, volume II, pages 455–459, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.

- Lirov, Y. (1992). Computer aided neural network engineering. *Neural Networks*, 5(4):711–719.
- Lisboa, P. J. G. (1992). Single layer perceptron for the recognition of hand-written digits. *Int. J. Neural Networks—Res. & Applications*, 3(1):17–22.
- Lisogurski, D. and Birch, G. E. (1998). Identification of finger flexions from continuous EEG as a brain computer interface. In *Proceedings of the 20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Vol.20 Biomedical Engineering Towards the Year 2000 and Beyond.*, volume 4, pages 2004–7, Piscataway, NJ. IEEE Service Center.
- Liszka-Hackzell, J. (1995). Categorization of fetal heart rate patterns using neural networks. In *Computers in Cardiology 1994*, pages 97–100, Los Alamitos, CA, USA. Dept. of Med. Inf. , Linkoping Inst. of Technol. , Sweden, IEEE Computer Society Press.
- Liszka Hackzell, J. J. (2001). Categorization of fetal heart rate patterns using neural networks. *Journal-of-Medical-Systems*, 25:269–76.
- Litke, H. D. (1990). Neurocomputers. 2. learning from the human brain. *NET*, 44(7–8):330–337.
- Littman, E., Meyering, A., Walter, J., Wengerek, T., and Ritter, H. (1992). Neural networks for robotics. In Schuster, K., editor, *Applications of Neural Networks*, pages 79–103. VCH, Weinheim, Germany.
- Liu, C., Konq, L., Shen, P., and Xia, D. (2001a). Multi-source remote sensing data fusion using fuzzy self-organization mapping network and modified dempster-shafer evidential reasoning method to classification. In *Proceedings-of-the-SPIE –The-International-Society-for-Optical-Engineering. vol.4556*, volume 4556, pages 71–9.
- Liu, C.-L. and Nakagawa, M. (2001). Evaluation of prototype learning algorithms for nearest-neighbor classifier in application to handwritten character recognition. *Pattern Recognition*, 34(3):601–615.
- Liu, C.-L., Sako, H., and Fujisawa, H. (2002). Performance evaluation of pattern classifiers for handwritten character recognition. *International-Journal-on-Document-Analysis-and-Recognition*, 4:191–204.
- Liu, C. T., Tai, P. L., Chen, A. Y. J., Peng, C. H., and Wang, J. S. (2000a). A content-based medical teaching file assistant for CT lung image retrieval. In *ICECS 2000. 7th IEEE International Conference on Electronics, Circuits and Systems. IEEE, Piscataway, NJ, USA*, volume 1, pages 361–5.
- Liu, C. T., Tai, P. L., Chen, A. Y. J., Peng, C.-H., and Wang, J. S. (2000b). A content-based scheme for CT lung image retrieval. In *IEEE International Conference on Multi-Media and Expo*, pages 1203–1206. Department of Computer Science, National Tsing Hua University.
- Liu, C. y. and Li, J. g. (1995a). Auto-clustering of mugshots using multi-layer Kohonen network. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2424:611–19.
- Liu, C.-Y. and Li, J.-G. (1995b). Multilayer Kohonen network and its separability analysis. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2492(pt. 2):788–95.
- Liu, H. (1995). Ordered Kohonen vector quantization for very low bit rate interframe video coding. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2419:71–80.
- Liu, H. and Shao, Y. (1998). An improved learning vector quantization neural network for land cover classification with multi-temporal radarsat images. In Stein, T. I., editor, *IGARSS '98. Sensing and Managing the Environment. 1998 IEEE International Geoscience and Remote Sensing. Symposium Proceedings*, volume 4, pages 1787–9. IEEE, New York, NY, USA.
- Liu, H. and Yun, D. Y. Y. (1992a). Adaptive image segmentation by quantization. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1766:322–32.

- Liu, H. and Yun, D. Y. Y. (1992b). Competitive learning algorithms for image coding. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 1):408–17.
- Liu, H. and Yun, D. Y. Y. (1993). Self-Organizing finite state vector quantization for image coding. In Alspector, J., Goodman, R., and Brown, T. X., editors, *Proc. Int. Workshop on Application of Neural Networks to Telecommunications*, pages 176–182, Hillsdale, NJ. Lawrence Erlbaum.
- Liu, J. and Wang, D. (1992). Data compression for image recognition using neural network. In *IJCNN International Joint Conference on Neural Networks*, volume 4, pages 333–8, New York, NY, USA. Sch. of Electr. & Electron. Eng. , Nanyang Technol. Inst. , Singapore, IEEE.
- Liu, J. C. and Pok, G. (1999). Texture edge detection by feature encoding and predictive model. In *1999 IEEE International Conference on Acoustics, Speech, and Signal Processing. Proceedings. ICASSP99.*, volume 2, pages 1105–8, Piscataway, NJ. IEEE Service Center.
- Liu, J. N. K. and Lee, R. S. T. (1999). Rainfall forecasting from multiple point sources using neural networks. In *IEEE SMC'99 Conference Proceedings. 1999 IEEE International Conference on Systems, Man, and Cybernetics.*, volume 3, pages 429–34, Piscataway, NJ. IEEE Service Center.
- Liu, J.-Q. and Zheng, N.-N. (1990). A new neural network model based approach to unsupervised image segmentation. In Ng, C. S., Yeo, T. S., and Yeo, S. P., editors, *Communications on the Move. Singapore. ICCS/ISITA '92*, volume 3, pages 1404–8, New York, NY, USA. Inst. of AI & Robotics, Xi'an Jiaotong Univ. , Xi'an, China, IEEE.
- Liu, L., He, J., and Palm, G. (1996a). Signal modeling for speaker identification. In *1996 IEEE International Conference on Acoustics, Speech, and Signal Processing Conference Proceedings*, volume 2, pages 665–8. IEEE, New York, NY, USA.
- Liu, Q., Levinson, S., Wu, Y., and Huang, T. (2001b). Robot speech learning via entropy guided LVQ and memory association. In *Proceedings of the International Joint Conference on Neural Networks*, volume 3, pages 2176–2181. FX Palo Alto Laboratory.
- Liu, Q., Levinson, S., Wu, Y., and Huang, T. (2001c). Robot speech learning via entropy guided LVQ and memory association. In *IJCNN'01. International Joint Conference on Neural Networks. Proceedings. IEEE, Piscataway, NJ, USA*, volume 3, pages 2176–81.
- Liu, Q., Rui, Y., Huang, T., and Levinson, S. (1999). Video sequence learning and recognition via dynamic som. In *IEEE International Conference on Image Processing (4 Oct 24-Oct 28 1999)*, pages 93–97.
- Liu, X., Cheng, G., and Wu, J. (1994a). Managing the noisy glaucomatous test data by self-organizing maps. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 649–652, Piscataway, NJ. IEEE Service Center.
- Liu, X., Cheng, G., and Wu, J. (1996b). Analysing visual field data by self-organising maps. In *Fourth European Congress on Intelligent Techniques and Soft Computing Proceedings, EUFIT '96*, volume 2, pages 1435–9. Verlag Mainz, Aachen, Germany.
- Liu, X., Cheng, G., and Wu, J. X. (1994b). Identifying the measurement noise in glaucomatous testing: an artificial neural network approach. *Artificial Intelligence in Medicine*, 6(5):401–15.
- Liu, X. and Zheng, Y. (2000). Analysis on the parameters to affect behavior of rock-socketed segment of piles. *Yanshilixue Yu Gongcheng Xuebao/Chinese Journal of Rock Mechanics and Engineering*, 19(3):383–386.
- Liu, Y., Zhao, B., and Xia, S. W. (2000c). Self-organizing network with fuzzy hyperellipsoidal classifying and its application in unconstrained handwritten numeral recognition. *Qinghua Daxue Xuebao/Journal of Tsinghua University*, 40(9):120–124.

- Liu, Y.-H. and Huang, H.-P. (2001). Off-line recognition of a handwritten chinese zither score. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 4, pages 2632–2637. Robotics Laboratory, Department of Mechanical Engineering, National Taiwan University.
- Liu, Z. Q. (2001). Retrieving faces using adaptive subspace self-organising map. In *Proceedings of 2001 International Symposium on Intelligent Multimedia, Video and Speech Processing. ISIMP 2001. IEEE, Piscataway, NJ, USA*, pages 377–80.
- Livens, S., Scheunders, P., Van de Wouwer, G., van Dyck, D., Smets, H., Winkelmans, J., and Bogaerts, W. (1996). A texture analysis approach to corrosion image classification. *Microscopy, Microanalysis, Microstructures*, 7(2):143–52.
- Liya, C. and Feihu, Q. (1995). Object extraction using Kohonen neural network. *Journal of Shanghai Jiaotong University*, 29(6):24–8.
- Llobet, E., Hines, E. L., Gardner, J. W., and Franco, S. (1999). Non-destructive banana ripeness determination using a neural network-based electronic nose. *Measurement Science & Technology*, 10:538–48.
- Lo, J. Y. and Floyd, Jr. , C. E. (1997). Self-organizing maps for analyzing mammographic findings. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume IV, pages 2472–2474. IEEE Service Center, Piscataway, NJ.
- Lo, K. L., Peng, L. J., Maqueen, J. F., Ekwue, A. O., and Cheng, D. T. Y. (1995). Application of Kohonen self-organising neural network to static security assessment. In *Fourth International Conference on ‘Artificial Neural Networks’*, pages 387–92, London, UK. Strathclyde Univ. , Glasgow, UK, IEE.
- Lo, K. L. and Tsai, R. J. Y. (1995). Power system transient stability analysis by using modified Kohonen network. In *1995 IEEE International Conference on Neural Networks Proceedings*, volume 2, pages 893–8. IEEE, New York, NY, USA.
- Lo, Y. S. and Pei, S. C. (1999). Color image segmentation using local histogram and self-organization of Kohonen feature map. In *IEEE International Conference on Image Processing*, volume 3, pages 232–235.
- Lo, Z. P. and Bavarian, B. (1991a). Comparison of a neural network and a piecewise linear classifier. *Pattern Recognition Letters*, 12(11):549–655.
- Lo, Z. P. and Bavarian, B. (1991b). Improved rate of convergence in Kohonen neural network. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, volume II, pages 201–206, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Lo, Z.-P. and Bavarian, B. (1991c). A neural algorithm for variable thresholding of images. In *Proc. Fifth Int. Parallel Processing Symp.*, pages 228–233, Los Alamitos, CA. IEEE, IEEE Computer Society Press.
- Lo, Z. P. and Bavarian, B. (1991d). A neural piecewise linear classifier for pattern classification. In *IJCNN-91: International Joint Conference on Neural Networks, Seattle*, volume I, pages 263–268, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Lo, Z. P. and Bavarian, B. (1991e). On the rate of convergence in topology preserving neural networks. *Biol. Cyb.*, 65(1):55–63.
- Lo, Z.-P. and Bavarian, B. (1994). Development of a two-stage neural network classifier. *Journal of Artificial Neural Networks*, 1(3):307–27.
- Lo, Z. P., Fujita, M., and Bavarian, B. (1991a). Analysis and application of self-organizing sensory mapping. In *Proc. Conf. IEEE International Conference on Syst. , Man, and Cybern. ‘Decision Aiding for Complex Systems’*, volume III, pages 1599–1604, Piscataway, NJ. IEEE, IEEE Service Center.

- Lo, Z.-P., Fujita, M., and Bavarian, B. (1991b). Analysis of neighborhood interaction in Kohonen neural networks. In *Proc. Fifth Int. Parallel Processing Symp.*, pages 246–249, Los Alamitos, CA. IEEE, IEEE Computer Society Press.
- Lo, Z.-P., Qu, Y., and Bavarian, B. (1992a). Analysis of a learning algorithm for neural network classifiers. In *Proc. IJCNN'92, International Joint Conference on Neural Networks*, volume I, pages 589–594, Piscataway, NJ. IEEE Service Center.
- Lo, Z.-P., Yu, Y., and Bavarian, B. (1992b). Derivation of learning vector quantization algorithms. In *Proc. IJCNN'92, International Joint Conference on Neural Networks*, volume III, pages 561–566, Piscataway, NJ. IEEE Service Center.
- Lo, Z.-P., Yu, Y., and Bavarian, B. (1992c). Two theorems for the Kohonen mapping neural network. In *Proc. IJCNN'92, Int. Joint Conference on Neural Networks*, volume IV, pages 755–760, Piscataway, NJ. IEEE Service Center.
- Lo, Z.-P., Yu, Y., and Bavarian, B. (1993). Analysis of the convergence properties of topology preserving neural networks. *IEEE Trans. on Neural Networks*, 4(2):207–220.
- Lobo, V. and Moura-Pires, F. (1995). Ship noise classification using Kohonen networks. In *Proc. EANN'95, Engineering Applications of Artificial Neural Networks*, pages 601–604. Finnish Artificial Intelligence Society.
- Lobo, V. J., Bandeira, N., and Moura Pires, F. (1998a). Distributed Kohonen networks for passive sonar based classification. In *Proceedings of the International Conference on Multisource-Multisensor Information Fusion. FUSION '98*, volume 1, pages 403–9, Athens, GA, USA. CSREA Press.
- Lobo, V. J., Bandeira, N., and Moura Pires, F. (1998b). Ship recognition using distributed self organizing maps. In *Engineering Benefits from Neural Networks. Proceedings of the International Conference EANN '98*, pages 326–9. Systems Engineering Association, Turku, Finland.
- Lobo, V. J., Swiniarski, R., and Moura-Pires, F. (1998c). Pruning a classifier based on a self-organizing map using boolean function formalization. In *1998 IEEE International Joint Conference on Neural Networks Proceedings. IEEE World Congress on Computational Intelligence*, volume 3, pages 1910–15. IEEE, New York, NY, USA.
- Loccufer, M. (1997). Neural network techniques: a tutorial on interconnection, learning and stability. *Journal A*, 38(4):3–15.
- Loncelle, J., Derycke, N., and Fogelman-Soulie, F. (1992a). Cooperation of GBP and LVQ networks for optical character recognition. In *Proc. IJCNN'92, International Joint Conference on Neural Networks*, volume III, pages 694–699, Piscataway, NJ. IEEE Service Center.
- Loncelle, J., Derycke, N., and Soulié, F. F. (1992b). Optical character recognition and cooperating neural networks techniques. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume II, pages 1591–1594, Amsterdam, Netherlands. North-Holland.
- Lönnblad, L., Peterson, C., Pi, H., and Rögnvaldsson, T. (1991). Self-organizing networks for extracting jet features. *Computer Physics Communications*, 67:193–209.
- López-Gonzalo, E. and Hernández-Gómez, L. A. (1993). Fast vector quantization using neural maps for CELP at 2400 BPS. In *Proc. EUROSPEECH-93, 3rd European Conf. on Speech, Communication and Technology*, volume I, pages 55–58, Berlin, Germany. ESCA.
- Lopez-Rubio, E., Munoz-Perez, J., and Gomez-Ruiz, J. A. (2001). Invariant pattern identification by self-organising networks. *Pattern Recognition Letters*, 22(9):983–990.
- Lossmann, E. and Meister, A. (1998). Investigation of phase coupling of harmonic signal components using third order statistics and classification based on learning vector quantization. In *BEC '98. Proceedings. 6th Biennial Conference on Electronics and Microsystems Technology. Tallin Tech. Univ, Tallinn, Estonia*, pages 143–6.

- Lowe, D. and Tipping, M. E. (1997). Neuroscale: novel topographic feature extraction using RBF networks. In Mozer, M. C., Jordan, M. I., and Petsche, T., editors, *Advances in Neural Information Processing Systems 9. Proceedings of the 1996 Conference*, pages 543–9. MIT Press, London, UK.
- Lowther, D. A. and Mai, W. (1998). On automatic mesh generation using Kohonen maps. *IEEE Transactions on Magnetics*, 34(5, pt.1):3391–4.
- Lozano, J., Novic, M., Rius, F. X., and Zupan, J. (1995). Modelling metabolic energy by neural networks. *Chemometrics and Intelligent Laboratory Systems*, 28(1):61–72.
- Lozano, S., Guerrero, F., Onieva, L., and Larraneta, J. (1998). Kohonen maps for solving a class of location-allocation problems. *European Journal of Operational Research*, 108(1):106–17.
- Lu, C. C. and Shin, Y. H. (1992). A neural network based image compression system. *IEEE Transactions on Consumer Electronics*, 38(1):25–29.
- Lu, J., Srikanthana, R., McClain, M., Wang, Y., Xuan, J., Sesterhenn, I., Freedman, M., and Mun, S. (2000). Statistical volumetric model for characterization and visualization of prostate cancer. *Proceedings of SPIE—The International Society for Optical Engineering*, 3976:142–153.
- Lu, S.-Y. (1990). Pattern classification using self organizing feature maps. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, San Diego*, volume III, pages 471–476, Piscataway, NJ. IEEE Service Center.
- Lu, S. Y., Hernandez, J. E., and Clark, G. A. (1991). Texture segmentation by clustering of Gabor feature vectors. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, volume I, pages 683–688, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Lu, T., Yu, F. T. S., and Gregory, D. A. (1990a). Self-organizing optical neural network for unsupervised learning. *Proc. SPIE—The International Society for Optical Engineering*, 1296:378–391.
- Lu, T., Yu, F. T. S., and Gregory, D. A. (1990b). Self-organizing optical neural network for unsupervised learning. *Optical Engineering*, 29(9):1107–1113.
- Lu, Y. C. and Chang, K. C. (1995). A neural network approach for high resolution target classification. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2484:558–66.
- Lubkin, J. and Cauwenberghs, G. (1998). A learning parallel analog-to-digital vector quantizer. *Journal of Circuits, Systems and Computers*, 8:605–14.
- Lubkin, J. and Cauwenberghs, G. (1999). VLSI implementation of fuzzy adaptive resonance and learning vector quantization. In *Proceedings of the Seventh International Conference on Microelectronics for Neural, Fuzzy and Bio-Inspired Systems*, pages 147–54, Los Alamitos, CA, USA. IEEE Computer Society.
- Lubkin, J. and Cauwenberghs, G. (2002). VLSI implementation of fuzzy adaptive resonance and learning vector quantization. *Analog Integrated Circuits and Signal Processing*, 30(2):149–157.
- Lucas, A. E. and Kittler, J. (1989). A comparative study of the Kohonen and multedit neural net learning algorithms. In *Proc. First IEE International Conference on Artificial Neural Networks*, pages 7–11, London, UK. IEE.
- Luckman, A. J. and Allinson, M. (1990). Modelling peripheral pre-attention and foveal fixation for search directed machine vision systems. *Proc. Society of Photo-optical Instrumentation Engineers*, 1197:98–108.
- Luckman, A. J. and Allinson, N. M. (1992). A multiple resolution facial feature location network with perceptual feedback. In Brogner, D., editor, *Visual Search*, pages 169–178. Taylor & Francis, London, UK.

- Ludwig, L., Kessler, W., Göbbert, J., and Rosenstiel, W. (1995). SOM with topological interpolation for the prediction of interference spectra. In *Proc. EANN'95, Engineering Applications of Artificial Neural Networks*, pages 379–387. Finnish Artificial Intelligence Society.
- Luo, J.-H. and Tseng, D.-C. (2001). Land cover classification of SPOT image by local majority voting. In *International Geoscience and Remote Sensing Symposium (IGARSS)*, volume 6, pages 2931–2933. Department of Electronic Engineering, Ming-Hsin Institute of Technology, Institute of Electrical and Electronics Engineers Inc.
- Luo, R. C. and Potlapalli, H. (1994). Landmark recognition using projection learning for mobile robot navigation. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2703–2708, Piscataway, NJ. IEEE Service Center.
- Luo, R. C., Potlapalli, H., and Hislop, D. (1993). Traffic sign recognition in outdoor environments using reconfigurable neural networks. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1306–1309, Piscataway, NJ. JNNS, IEEE Service Center.
- Luo, X., Singh, C., and Patton, A. D. (1999a). Loss-of-load state identification using self-organizing map. In *1999 IEEE Power Engineering Society Summer Meeting. Conference Proceedings.*, volume 2, pages 670–5, Piscataway, NJ. IEEE Service Center.
- Luo, X., Singh, C., and Patton, A. D. (1999b). Using self-organizing map in identification of load-loss state. *PowerTech Budapest 99. Abstract Records.*, page 132.
- Luo, X., Singh, C., and Patton, A. D. (2000a). Power system reliability evaluation using self-organizing map. In *2000 IEEE Power Engineering Society Winter Meeting. Conference Proceedings. IEEE, Piscataway, NJ, USA*, volume 2, pages 1103–8.
- Luo, X., Singh, C., and Zhao, Q. (2000b). Loss-of-load probability calculation using learning vector quantization. In *PowerCon 2000. 2000 International Conference on Power System Technology. Proceedings. IEEE, Piscataway, NJ, USA*, volume 3, pages 1707–12.
- Luo, Z.-W., Asada, K., Yamakita, M., and Ito, K. (1994). Self-organization of an uniformly distributed visuo-motor map through controlling the spatial variation. In Asama, H., Fukuda, T., Arai, T., and Endo, I., editors, *Distributed Autonomous Robotic Systems*, pages 279–88. Springer-Verlag, Tokyo, Japan.
- Lutey, M. K. (1988). Problem specific applications for neural networks. Master's thesis, Air Force Inst. of Tech., Wright-Patterson AFB, OH.
- Luttrell, S. P. (1988). Self-organizing multilayer topographic mappings. In *Proc. ICNN'88, International Conference on Neural Networks*, volume I, pages 93–100, Piscataway, NJ. IEEE Service Center.
- Luttrell, S. P. (1989a). Hierarchical self-organizing networks. In *Proc. 1st IEE Conf. of Artificial Neural Networks*, pages 2–6, London, UK. British Neural Network Society.
- Luttrell, S. P. (1989b). Hierarchical vector quantisation. *Proc. IEE Part I*, 136:405–413.
- Luttrell, S. P. (1989c). Image compression using a multilayer neural network. *Pattern Recognition Letters*, 10:1–7.
- Luttrell, S. P. (1989d). Self-organisation: A derivation from first principles of a class of learning algorithms. In *Proc. IJCNN'89. Int Joint Conf. on Neural Networks*, volume II, pages 495–498, Piscataway, NJ. IEEE Technical Activities Board, Neural Network Committee, USA; Int Neural Network Soc, IEEE Service Center.
- Luttrell, S. P. (1990a). Asymptotic code vector density in topographic vector quantisers. Technical Report 4392, RSRE, Malvern, UK.
- Luttrell, S. P. (1990b). Derivation of a class of training algorithms. *IEEE Trans. on Neural Networks*, 1(2):229–232.

- Luttrell, S. P. (1990c). A trainable texture anomaly detector using the Adaptive Cluster Expansion (ACE) method. Technical Report 4437, RSRE, Malvern, UK.
- Luttrell, S. P. (1991a). Code vector density in topographic mappings: scalar case. *IEEE Trans. on Neural Networks*, 2(4):427–436.
- Luttrell, S. P. (1991b). Self-supervised training of hierarchical vector quantisers. In *Proc. 2nd IEE Conf. on Artificial Neural Networks*, pages 5–9, London, UK. British Neural Network Society.
- Luttrell, S. P. (1991c). Self-supervision in multilayer adaptive networks. Technical Report 4467, RSRE, Malvern, UK.
- Luttrell, S. P. (1992a). Code vector density in topographic mappings. Technical Report 4669, DRA, Malvern, UK.
- Luttrell, S. P. (1992b). Image anomaly detector. British Patent Application 9202752. 3.
- Luttrell, S. P. (1992c). Self-supervised adaptive networks. *IEE Proc. F [Radar and Signal Processing]*, 139(6):371–377.
- Luttrell, S. P. (1993). The Markov chain theory of vector quantisers. Technical Report 4742, DRA, Malvern, UK.
- Luttrell, S. P. (1994). A Bayesian analysis of self-organising maps. *Neural Computation*, 6(5):767–794.
- Luttrell, S. P. (1995). Using self-organising maps to classify radar range profiles. In *Fourth International Conference on ‘Artificial Neural Networks’*, pages 335–40, London, UK. Defence Res. Agency, UK, IEE.
- Luttrell, S. P. (2001). Adaptive subspace encoders using stochastic vector quantisers. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 102–9. Springer.
- Ma, H., Kumeda, K., Kamei, K., and Inoue, K. (1994). A proposal of improved fuzzy learning vector quantization method. *Transactions of the Institute of Electronics, Information and Communication Engineers*, J77D-II(4):887–9.
- Ma, Q., Kanzaki, K., Murata, M., Uchimoto, K., and H., I. (2001a). Self-organizing semantic map of Japanese nouns. *Transactions-of-the-Information-Processing-Society-of-Japan*, 42:2379–91.
- Ma, Q., Kanzaki, K., Murata, M., Uchimoto, K., and Isahara, J. (2000a). Self-organizing Japanese semantic maps. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 188–94.
- Ma, Q., Kanzaki, K., Murata, M., Utiyama, M., Uchimoto, K., and Isahara, H. (2000b). Self-organizing semantic maps of Japanese nouns in terms of adnominal constituents. In *Proceedings of the International Joint Conference on Neural Networks*, volume 6, pages 91–96, Piscataway, NJ. Ministry of Posts and Telecommunications, IEEE.
- Ma, X., Li, C., and Zhang, X. (2001b). The modification of intelligent target detection in non-stationary clutter. In *CIE International Conference of Radar Proceedings*, pages 324–328. Tsinghua University.
- Ma, Y. and Li, N. (2001). Simulation studies of analog circuits fault approach based on self-organizing feature map neural networks. *Journal-of-System-Simulation*, 13:582–4.
- Macabrey, N., Baumann, T., and Germond, A. J. (1992). Load forecasting on an electrical system with the aid of the Kohonen neural network. *Bulletin des Schweizerischen Elektrotechnischen Vereins & des Verbandes Schweizerischer Elektrizitätswerke*, 83(5):13–19. (in French).
- Macda, M. and Miyajima, H. (2001). Properties of deletion methods in competitive learning. In *Proceedings—IEEE International Symposium on Circuits and Systems*, volume 3, pages 707–710. Kurume Natl. College of Technology.

- MacDonald, D. and Fyfe, C. (2000). Kernel self organizing map. *International Conference on Knowledge-Based Intelligent Electronic Systems, Proceedings, KES*, 1:317–320.
- MacDonald, D., McGlinchey, S., Kawala, J., and Fyfe, C. (1999). Comparison of Kohonen, scale-invariant and GTM self-organising maps for interpretation of spectral data. In *7th European Symposium on Artificial Neural Networks. ESANN'99. Proceedings*, pages 117–22, Brussels, Belgium. D-Facto.
- Macek, T. and Snorek, M. (1999). Web-based simulation of artificial neural nets. In *Modelling and Simulation: A Tool for the Next Millennium. 13th European Simulation Multiconference 1999. ESM'99*, volume 1, pages 320–3, San Diego, CA, USA. SCS.
- Macq, D., Legat, J. D., and Jespers, P. G. A. (1992). Analog storage of adjustable synaptic weights. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 2):712–18.
- Macq, D., Verlcsen, M., Jespers, P., and Legat, J. D. (1993). Analog implementation of a Kohonen map with on-chip learning. *IEEE Transactions on Neural Networks*, 4(3):456–461.
- MacWhinney, B. (1997). Lexical connectionism. In Broeder, P. and Murre, J., editors, *Cognitive approaches to language learning*. The MIT Press, Cambridge, MA.
- Madani, K., Bengharbi, A., and Amarger, V. (1997). Neural fault diagnosis techniques for non-linear analogue circuits. *Proceedings of the SPIE—The International Society for Optical Engineering*, 3077:491–502. (Applications and Science of Artificial Neural Networks III Conf. Date: 21–24 April 1997 Conf. Loc: Orlando, FL, USA Conf. Sponsor: SPIE).
- Madekivi, S. (1988). Experiments on automatic classification of shallow water acoustic signal sources using two pattern recognition methods. In *Proc. ICASSP-88, International Conference on Acoustics, Speech and Signal Processing*, pages 2693–2696, Piscataway, NJ. IEEE, Acoustics, Speech and Signal Processing Soc, New York, NY, USA, IEEE Service Center.
- Maeda, M., Miyajima, H., and Murashima, S. (1996). An adaptive learning and self-deleting neural network for vector quantization. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E79-A(11):1886–93.
- Maekawa, S., Kita, H., and Nishikawa, Y. (1994). A competitive system with adaptive gain tuning. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2813–2818, Piscataway, NJ. IEEE Service Center.
- Maenou, T., Fujimura, K., and Kishida, S. (1997). Optimizations of TSP by SOM method. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 1013–1016. Springer, Singapore.
- Maggioni, C. and Wirtz, B. (1991). A neural net approach to 3-D pose estimation. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume I, pages 75–80, Amsterdam, Netherlands. North-Holland.
- Magnisalis, X., Auge, E., and Strintzis, M. G. (1992). Parallel implementation of the learning vector quantizer with application in ultrasound image lesion recognition. In Tzafestas, S., Borne, P., and Grandinetti, L., editors, *Parallel and Distributed Computing in Engineering Systems. Proc. IMACS/IFAC Int. Symp.*, pages 383–386, Amsterdam, Netherlands. IMACS; IFAC, North-Holland.
- Mahonen, P., Cortiglioni, F., and Frantti, T. (2000). Automated galaxy survey classification using SOM and hybrid algorithms. In *Proceedings of the IASTED International Conference. Signal and Image Processing. IASTED/ACTA Press, Anaheim, CA, USA*, pages 245–50.

- Mähönen, P., Cortiglioni, F., and Hakala, P. (2000). Automated galaxy survey classifications using self-organizing maps. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. VTT, Networking Research, P.O. Box 1100, FIN-90570 Oulu, Finland; University of Oulu, Department of Physical Sciences, Oulu, Finland; Tuorola Observatory, University of Turku, Finland, ICSC Academic Press.
- Mähönen, P. H. and Hakala, P. J. (1995). Automated source classification using a Kohonen network. *The Astrophysical Journal*, 452(1):L77–L80.
- Mailachalam, B. and Srikanthan, T. (2000). A robust parallel architecture for adaptive color quantization. In *Proceedings International Conference on Information Technology: Coding and Computing. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 164–9.
- Maillard, E. and Gresser, J. (1994). Reduced risk of Kohonen's feature map non-convergence by an individual size of the neighborhood. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 704–707, Piscataway, NJ. IEEE Service Center.
- Maillard, E. and Solaiman, B. (1994). A neural network based on LVQ2 with dynamic building of the map. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 766–770, Piscataway, NJ. IEEE Service Center.
- Maillard, E., Zerr, B., and Merckle, J. (1992). Classification of texture by an association between a perceptron and a self-organizing feature map. In Vandewalle, J., Boite, R., Moonen, M., and Oosterlinck, A., editors, *Proc. EUSIPCO-92, Sixth European Signal Processing Conference*, volume II, pages 1173–1176, Amsterdam, Netherlands. Elsevier.
- Makino, S., Endo, M., Sone, T., and Kido, K. (1992). Recognition of phonemes in continuous speech using a modified LVQ2 method. *J. Acoustical Society of Japan [E]*, 13(6):351–360. (in English).
- Makino, S., Ito, A., Endo, M., and Kido, K. (1991a). A Japanese text dictation system based on phoneme recognition and a dependency grammar. *IEICE Trans.*, E74(7):1773–1782.
- Makino, S., Ito, A., Endo, M., and Kido, K. (1991b). A Japanese text dictation system based on phoneme recognition and a dependency grammar. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 273–276, Piscataway, NJ. IEEE Service Center.
- Mäkipää, M., Heinonen, P., and Oja, E. (1997). Using the SOM in supporting diabetes therapy. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 51–56. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Maksimovic, R. and Popovic, M. (1999). Classification of tetraplegics through automatic movement evaluation. *Medical Engineering & Physics*, 21:313–27.
- Maksoud, T. M. A., Ahmed, M. R., and Koura, M. (2001). Improving wheel-workpiece contact detection using a hybrid neural network. *PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART B- JOURNAL OF ENGINEERING MANUFACTURE*, 215(11):1595–1602.
- Malhotra, R. and Malhotra, D. K. (2000). Identifying potential loan defaulters in the credit union environment: a comparative analysis of statistical and neural network models. *Journal-of-Information-Technology-Cases-and-Applications-(JITCA)*, 2:20–48.
- Malko, J. (1996). Short term electric load forecasting case study: power system of poland. In *31st Universities Power Engineering Conference. Conference Proceedings*, volume 3, pages 1058–60. Technol. Educ. Inst. Iraklio, Iraklio, Greece.
- Malko, J. and Mikolajczak, H. (1994). An artificial neural network based model for short term electric load forecasting. In Hamza, M. H., editor, *Proceedings of the Twelfth IASTED International Conference Applied Informatics*, pages 135–8. IASTED, Anaheim, CA, USA.

- Malko, J., Mikolajczak, H., and Skorupski, W. (1995). Artificial neural network based models for short-and long-term load forecasting in the power system. In *Stockholm Power Tech International Symposium on Electric Power Engineering*, volume 5, pages 595–600. IEEE, New York, NY, USA.
- Malmgren, B. A. and Winter, A. (1999). Climate zonation in Puerto Rico based on principal components analysis and an artificial neural network. *Journal of Climate*, 12:977–85.
- Malmstrom, K., Munday, L., and Sitte, J. (1994). A simple robust robotic vision system using Kohonen feature mapping. In *Proceedings of the 1994 Second Australian and New Zealand Conference on Intelligent Information Systems*, pages 135–9, New York, NY, USA. Fac. of Build Environ. & Eng. , Queensland Univ. of Technol. , Brisbane, Qld. , Australia, IEEE.
- Malmstrom, K., Sitte, J., and Iske, B. (2001). Perception stimulated generation of simple robot navigation behaviour. In Choset, H. M., Gage, D. W., and Stein, M. R., editors, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4195, pages 228–239. School of Computing Science, Queensland University of Technology.
- Mamlook, R. and Thompson, W. E. (1995a). Multiple-class identification algorithm using genetic neural networks. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2484:681–8.
- Mamlook, R. and Thompson, W. E. (1995b). Multiple-class identification algorithm using genetic neural networks. In *ICECS '95. International Conference on Electronics, Circuits and Systems. Proceedings*, pages 399–404. Higher Council for Sci. & Technol, Amman, Jordan.
- Mancuso, S. (2001). Clustering of grapevine (*vitis vinifera l.*) genotypes with kohonen neural networks. *VITIS*, 40(2):59–63.
- Manduca, A. (1994a). Multi-parameter image visualization with self-organizing maps. In Dagli, C. H., Fernandez, B. R., Ghosh, J., and Kumara, R. T. S., editors, *Intelligent Engineering Systems Through Artificial Neural Networks*, volume 4, pages 593–8. ASME, New York, NY, USA.
- Manduca, A. (1994b). Multi-parameter medical image visualization with self-organizing maps. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 3990–3995, Piscataway, NJ. IEEE Service Center.
- Manduca, A. (1994c). Multi-spectral medical image visualization with self-organizing maps. In *Proceedings ICIP-94*, volume 1, pages 633–7, Los Alamitos, CA, USA. Dept. of Physiol. & Biophys. , Mayo Clinic, Rochester, MN, USA, IEEE Computer Society Press.
- Manduca, A. (1996). Multispectral image visualization with nonlinear projections. *IEEE Transactions on Image Processing*, 5(10):1486–90.
- Manevitz, L. (1997). Interweaving Kohonen maps of different dimensions to handle measure zero constraints on topological mappings. *Neural Processing Letters*, 5(2):153–9.
- Manevitz, L., Yousef, M., and Givoli, D. (1997). Finite-element mesh generation using self-organizing neural networks. *Microcomputers in Civil Engineering*, 12(4):233–50.
- Mangeas, M., Weigend, A. S., and Muller, C. (1995). Forecasting electricity demand using nonlinear mixture of experts. In *Proc. WCNN'95, World Congress on Neural Networks*, volume II, pages 48–53. INNS.
- Mangiameli, P., Chen, S. K., and West, D. (1996). A comparison of SOM neural network and hierarchical clustering methods. *European Journal of Operational Research*, 93(2):402–17.
- Manhaeghe, C., Lemahieu, I., and Vogelaers, D. (1992). 3D modelling of left ventricle tomograms using Kohonen feature maps. In Vandewalle, J., Boite, R., Moonen, M., and Oosterlinck, A., editors, *Signal Processing VI—Theories and Applications. Proceedings of EUSIPCO-92, Sixth European Signal Processing Conference*, volume 3, pages 1725–8, Amsterdam, Netherlands. Lab. for Electron. & Metrol. , Ghent Univ. , Belgium, Elsevier.

- Manhaeghe, C., Lemahieu, I., Vogelaers, D., and Colardyn, F. (1994). Automatic initial estimation of the left ventricular myocardial midwall in emission tomograms using Kohonen maps. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 16(3):259–66.
- Manian, V., Hernandez, R., and Vasquez, R. (2000). Classifier performance for SAR image classification. In *International Geoscience and Remote Sensing Symposium (IGARSS)*, volume 1, pages 156–158, Piscataway, NJ. Univ of Puerto Rico at Mayaguez, IEEE.
- Manickam, S. and Abidi, S. S. R. (2000). Unsupervised case classification using kohonen "self-organizing feature map" in a case-based reasoning system. In *2000 TENCON Proceedings. Intelligent Systems and Technologies for the New Millennium. IEEE, Piscataway, NJ, USA*, volume 2, pages 524–7.
- Manikopoulos, C., Antoniou, G., and Metzelopoulou, S. (1990). LVQ of image sequence source and ANS classification of finite state machine for high compression coding. In *Proc. IJCNN'90, International Joint Conference on Neural Networks*, volume I, pages 481–486, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Manikopoulos, C. N. and Antoniou, G. E. (1992). Adaptive encoding of a videoconference image sequence via neural networks. *J. Electrical and Electronics Engineering, Australia*, 12(3):233–241.
- Manikopoulos, C. N. and Li, J. (1989). Adaptive image sequence coding with neural network vector quantization. In *Proc. IJCNN'89, International Joint Conference on Neural Networks*, volume II, page 573, Piscataway, NJ. IEEE, IEEE Service Center.
- Manikopoulos, C. N., Li, J., and Antoniou, G. (1991). Neural net adaptive encoding of image sequence data. *J. New Generation Computer Systems*, 4(2):99–115.
- Mann, J., Lippmann, R., Berger, B., and Raffel, J. (1988). Self-organizing neural net chip. In *Proc. Custom Integrated Circuits Conference*, pages 10. 3/1–5, Piscataway, NJ. IEEE, IEEE Service Center.
- Mann, J. R. and Gilbert, S. (1989). An analog self-organizing neural network chip. In Touretzky, D. S., editor, *Advances in Neural Information Processing Systems I*, pages 739–747, San Mateo, CA. Morgan Kaufmann.
- Mann, R. and Haykin, S. (1990). A parallel implementation of Kohonen's feature maps on the warp systolic computer. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, Washington, DC*, volume II, pages 84–87, Hillsdale, NJ. Lawrence Erlbaum.
- Mann, R. and Haykin, S. (1991). Application of the self-organizing feature map and learning vector quantization to radar clutter classification. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1699–1702, Amsterdam, Netherlands. North-Holland.
- Manohar, M. and Tilton, J. C. (1992). Progressive vector quantization of multispectral image data using a massively parallel SIMD machine. In Storer, J. A. and Cohn, M., editors, *DCC '92. Data Compression Conf.*, pages 181–190, Los Alamitos, CA. IEEE; NASA/CESDIS, IEEE Computer Society Press.
- Manohar, M. and Tilton, J. C. (1996). Progressive vector quantization on a massively parallel SIMD machine with application to multispectral image data. *IEEE Trans. on Image Processing*, 5(1):142–147.
- Manping, L., Yuying, W., and Xiurong, Z. (1998). An approach to generate membership function by using Kohonen's SOFM nets. In Mira, J., del Pobil, A. P., and Ali, M., editors, *Methodology and Tools in Knowledge-Based Systems. 11th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems. IEA-98-AIE. Proceedings*, volume 1, pages 220–4. Springer-Verlag, Berlin, Germany.

- Mantyla, V. M., Mantyjarvi, J., Seppanen, T., and Tuulari, E. (2000). Hand gesture recognition of a mobile device user. In *IEEE International Conference on Multi-Media and Expo*, pages 281–284. Technical Research Centre of Finland.
- Mäntysalo, J., Torkkola, K., and Kohonen, T. (1992). LVQ-based speech recognition with high-dimensional context vectors. In *Proc. International Conference on Spoken Language Processing*, pages 539–542, Edmonton, Alberta, Canada. University of Alberta.
- Mäntysalo, J., Torkkola, K., and Kohonen, T. (1993a). Experiments on the use of LVQ in phoneme-level segmentation of speech. In Gori, M., editor, *Proc. 2nd Workshop on Neural Networks for Speech Processing*, pages 39–52, Trieste, Italy. Edizioni Lint Trieste.
- Mäntysalo, J., Torkkola, K., and Kohonen, T. (1993b). Handling context-dependencies in speech by LVQ. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 389–394, London, UK. Springer.
- Mäntysalo, J., Torkkola, K., and Kohonen, T. (1994). Mapping context dependent acoustic information into context independent form by LVQ. *Speech Communication*, 14(2):119–130.
- Mao, J. and Jain, A. K. (1995). Artificial neural networks for feature extraction and multivariate data projection. *IEEE Transactions on Neural Networks*, 6(2):296–317.
- Marabini, R. and Carazo, J. M. (1994). Pattern recognition and classification of images of biological macromolecules using artificial neural networks. *Biophysical Journal*, 66:1804–1814.
- Maragoudakis, M., Kermanidis, K., Fakotakis, N., and G, K. (2001). Learning automatic acquisition of subcategorization frames using bayesian inference and support vector machines. In *Proceedings 2001 IEEE International Conference on Data Mining. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 623–5.
- Marana, A. N., da F. Costa, L., Velastin, S. A., and Lotufo, R. A. (1997). Oriented texture classification based on self-organizing neural network and Hough transform. In *Proceedings of ICASSP'97, 1997 International Conference on Acoustics, Speech, and Signal Processing*, pages 2773–2775. IEEE Computer Society Press, Los Alamitos, CA.
- Marco, S., Ortega, A., Pardo, A., and Samitier, J. (1998). Gas identification with tin oxide sensor array and self-organizing maps: adaptive correction of sensor drifts. *IEEE Transactions on Instrumentation and Measurement*, 47(1):316–21.
- Maren, A. J. (1991). Neural networks for enhanced human-computer interactions. *IEEE Control Systems Magazine*, 11(5):34–36.
- Marengo, E., Aceto, M., and Maurino, V. (2002). Classification of nebbiolo-based wines from piedmont (italy) by means of solid-phase microextraction-gas chromatography-mass spectrometry of volatile compounds. *JOURNAL OF CHROMATOGRAPHY A*, 943(1):123–137.
- Marguerat, C. (1994). Artificial neural network algorithms on a parallel dsp system. In Becker, M., Litzler, L., and Tehel, M., editors, *Transputers '94. Proceedings of the International Conference*, pages 278–87, Amsterdam, Netherlands. Microcomput. Lab. , Swiss Federal Inst. of Technol. , Lausanne, Switzerland, IOS Press.
- Mariage, J.-J. (1997). Dynamic neighbourhoods in self organizing maps. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 175–180. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Marin, J., Ragsdale, D., and Sirdu, J. (2001). A hybrid approach to the profile creation and intrusion detection. In *Proceedings DARPA Information Survivability Conference and Exposition II. DISCEX'01. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 1, pages 69–76.
- Marinelli, A. M. P., Kaplan, L. M., and Nasrabadi, N. M. (1999a). SAR ATR using a modified learning vector quantization algorithm. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 3721, pages 343–354.

- Marinelli, A. M. P., Kaplan, L. M., and Nasrabadi, N. M. (1999b). SAR ATR using learning vector quantization. In *Proceedings of the SPIE—The International Society for Optical Engineering*, volume 3647, pages 14–25.
- Markon, S., Kita, H., and Nishikawa, Y. (1995). A voice-controlled elevator using neural networks. In Zhong, Y., Yang, Y., and Wang, M., editors, *Proceedings of International Conference on Neural Information Processing (ICONIP '95)*, volume 2, pages 929–34. Publishing House of Electron. Ind, Beijing, China.
- Marks, K. M. (1987). Multi users auf einer prolog-datenbasis. In *Proc. 1st Interface Prolog User Day*, Munich, Germany. Interface Computer GmbH.
- Marks, K. M. and Goser, K. F. (1988). Analysis of VLSI process data based on self-organizing feature maps. In *Proc. of Neuro-Nîmes, Int. Workshop on Neural Networks and their Applications*, pages 337–348, Nanterre, France. EC2.
- Marpaka, D. R. and Hwang, W. R. (1994). Neurocontroller for power systems using self-organizing neural networks. In *Proceedings of the American Power Conference*, volume 1, pages 778–83, Chicago, IL, USA. Dept. of Electr. & Comput. Eng. , Tennessee State Univ. , Nashville, TN, USA, Illinois Inst. Technol.
- Marques, J. S. and Abrantes, A. J. (1996). A class of probabilistic shape models. In Yuan, B. and Tang, X., editors, *Proceedings. 1997 IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pages 1054–9. IEEE, New York, NY, USA.
- Marshall, J. (1990). Self-organizing neural networks for perception of visual motion. *Neural Networks*, 3(1):45–74.
- Marshall, J. A. (1989). Self-organizing architectures for computing visual depth from motion parallax. In *Proc. IJCNN'89, International Joint Conference on Neural Networks*, volume II, pages 227–234, Piscataway, NJ. IEEE Service Center.
- Marsland, S., Nehmzow, U., and Shapiro, J. (2000a). Novelty detection for robot neotaxis. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23–26, 2000 in Berlin, Germany*. Department of Computer Science, University of Manchester, ICSC Academic Press.
- Marsland, S., Nehmzow, U., and Shapiro, J. (2000b). A real-time novelty detector for a mobile robot. *3rd Eurel Workshop and Masterclass. European Advanced Robotics Systems Development. Univ. Salford, Salford, UK; 2000; 2 vol. 312+344 pp.p.8 pp, 2:8*.
- Martin, P. and del Pobil, A. P. (1994). Application of artificial neural networks to the robot path planning problem. In Rzevski, G., Adey, R. A., and Russell, D. W., editors, *Applications of Artificial Intelligence in Engineering IX. Proceedings of the Ninth International Conference*, pages 73–80, Southampton, UK. Dept. of Comput. Sci. , Jaume I Univ. , Castellon, Spain, Comput. Mech. Publications.
- Martín-del-Brío, B. (1996). A dot product neuron for hardware implementation of competitive networks. *IEEE Trans. on Neural Networks*, 3(2):529–532.
- Martin-Del-Brio, B. and Blasco-Alberto, J. (1995). Hardware-oriented models for VLSI implementation of self-organizing maps. In Mira, J. and Sandoval, F., editors, *From Natural to Artificial Neural Computation. International Workshop on Artificial Neural Networks. Proceedings*, pages 712–19. Springer-Verlag, Berlin, Germany.
- Martin-Del-Brio, B., Medrano-Marques, N., and Blasco-Alberto, J. (1995). Feature map architectures for pattern recognition: techniques for automatic region selection. In Pearson, D. W., Steele, N. C., and Albrecht, R. F., editors, *Artificial Neural Nets and Genetic Algorithms. Proceedings of the International Conference*, pages 124–7. Springer-Verlag, Vienna, Austria.

- Martin-Del-Brio, B., Medrano-Marques, N., and Hernandez Sanchez, S. (1998). A low-cost neu- roprocessor board for emulating the SOFM neural model. In *1998 IEEE International Conference on Electronics, Circuits and Systems. Surfing the Waves of Science and Technology.*, volume 3, pages 297–300, Piscataway, NJ. IEEE Service Center.
- Martín-del-Brío, B. and Serrano-Cinca, C. (1993). Self-organizing neural networks for the analysis and representation of data: SOM financial cases. *Neural Computing & Application*, 1(3):193–206.
- Martin-Merino, M. and Munoz, A. (2001). Self organizing map and sammon mapping for asym- metric proximities. In *ARTIFICIAL NEURAL NETWORKS-ICANN 2001, PROCEEDINGS*, pages 429–435.
- Martin-Merino, M., Munoz, A., and Dimitriadis, Y. (2001). Incorporating asymmetry into SOM and sammon algorithms for visual map generation. In *Proceedings of the International Joint Conference on Neural Networks*, volume 3, pages 1908–1913. University Pontificia de Salamanca.
- Martín-Smith, P., Pelayo, F. J., Diaz, A., Ortega, J., and Prieto, A. (1993). A learning algorithm to obtain Self-Organizing Maps using fixed neighborhood Kohonen networks. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation, Lecture Notes in Computer Science No. 686*, pages 297–304, Berlin, Heidelberg. Springer.
- Martín-Smith, P., Pelayo, F. J., Ros, E., and Prieto, A. (1999). Supervised VQ learning based on temporal inhibition. In *Foundations and Tools for Neural Modeling. International Work-Conference on Artificial and Natural Neural Networks, IWANN'99. Proceedings, (Lecture Notes in Computer Science Vol.1606)*, volume 1, pages 610–20, Berlin, Germany. Springer-Verlag.
- Martinelli, G. and Mascioli, F. M. F. (1994). Enhancement of self-organising feature maps by linear pre-processing. In Caianiello, E. R., editor, *Neural Nets WIRN Vietri 93—Proceedings of the 5th Italian Workshop on Neural Nets*, Singapore. INFOCOM Dept. , Rome Univ. , Italy, World Scientific.
- Martinetz, T. (1992). *Selbstorganisierende neuronale Netzwerkmodelle zur Bewegungssteuerung.* PhD thesis, Technische Universität München, München, Germany.
- Martinetz, T. (1993). Competitive Hebbian learning rule forms perfectly topology preserving maps. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 427–434, London, UK. Springer.
- Martinetz, T., Ritter, H., and Schulten, K. (1989a). Kohonen's Self-organizing map for modeling the formation of the auditory cortex of a bat. In Pfeifer, R., Schreter, Z., Fogelman-Soulie, F., and Steels, L., editors, *Connectionism in Perspective*, pages 403–412. North-Holland, Am- sterdam, Netherlands.
- Martinetz, T., Ritter, H., and Schulten, K. (1990a). Learning of visuo-motor coordination of a robot arm with redundant degrees of freedom. In *Proc. International Conference on Parallel Processing in Neural Systems and Computers (ICNC), Düsseldorf*, pages 431–434, Amsterdam, Netherlands. Elsevier.
- Martinetz, T., Ritter, H., and Schulten, K. (1990b). Learning of visuomotor-coordination of a robot arm with redundant degrees of freedom. In *Proc. ISRAM-90, Third Int. Symp. on Robotics and Manufacturing*, pages 521–526, Vancouver, Canada.
- Martinetz, T., Ritter, H., and Shulten, K. (1989b). 3D-neural net for learning visuomotor- coordination of a robot arm. In *Proc. IJCNN'89, International Joint Conference on Neural Networks*, volume II, pages 351–356, Piscataway, NJ. IEEE Service Center.
- Martinetz, T. and Schulten, K. (1991). A "Neural-Gas" network learns topologies. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Proc. International Conference on Artificial Neural Networks (Espoo, Finland)*, volume I, pages 397–402, Amsterdam, Netherlands. North- Holland.

- Martinetz, T. and Schulten, K. (1993a). A neural network for robot control: cooperation between neural units as a requirement for learning. *Computers & Electrical Engineering*, 19(4):315–312.
- Martinetz, T. and Schulten, K. (1993b). A neural network with Hebbian-like adaptation rules learning visuomotor coordination of a PUMA robot. In *Proc. ICNN'93, International Conference on Neural Networks*, volume II, pages 820–822C, Piscataway, NJ. IEEE, IEEE Service Center.
- Martinetz, T. and Schulten, K. (1994). Topology representing networks. *Neural Networks*, 7(2).
- Martinetz, T. M., Berkovich, S. G., and Schulten, K. J. (1993). 'Neural-gas' network for vector quantization and its application to time-series prediction. *IEEE Trans. on Neural Networks*, 4(4):558–569.
- Martinetz, T. M., Ritter, H. J., and Schulten, K. J. (1990c). Three-dimensional neural net for learning visuomotor coordination of a robot arm. *IEEE Trans. on Neural Networks*, 1(1):131–136.
- Martinetz, T. M. and Schulten, K. J. (1990). Hierarchical neural net for learning control of a robot's arm and gripper. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, Washington, DC*, volume II, pages 747–752, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Martinez, P., Aguilar, P. L., Perez, R. M., Linaje, M., C., P. J., and A., P. (2001). Self-organizing map for hyperspectral image analysis. In *Bio-Inspired Applications of Connectionism. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part II. (Lecture Notes in Computer Science Vol.2085)*. Springer-Verlag, Berlin, Germany, pages 208–18.
- Martinez, W. M. (1995). A natural language processor with neural networks. In *1995 IEEE International Conference on Systems, Man and Cybernetics. Intelligent Systems for the 21st Century*, volume 4, pages 3156–61, New York, NY, USA. Dept. of Electr. & Comput. Eng. , Puerto Rico Univ. , Mayaguez, Puerto Rico, IEEE.
- Martinez Cabeza de Vaca Alajarín, J. and Tomas Balibrea, L. M. (1999a). Automatic classification system of marble slabs in production line according to texture and color using artificial neural networks. In *Computer Analysis of Images and Patterns. 8th International Conference, CAIP'99. Proceedings (Lecture Notes in Computer Science Vol.1689)*, pages 167–74, Berlin, Germany. Springer-Verlag.
- Martinez Cabeza de Vaca Alajarín, J. and Tomas Balibrea, L. M. (1999b). Marble slabs quality classification system using texture recognition and neural networks methodology. In *7th European Symposium on Artificial Neural Networks. ESANN'99. Proceedings*, pages 75–80, Brussels, Belgium. D-Facto.
- Martins, W. and Allinson, N. M. (1994). Improving adaptive logic networks: initialization and confidence. In *World Congress on Neural Networks-San Diego. 1994 International Neural Network Society Annual Meeting*, volume 4, pages IV/39–44, Hillsdale, NJ, USA. Dept. of Electron. , York Univ. , UK, Lawrence Erlbaum Associates.
- Martins, W. and Meira e Silva, J. C. (2001). Multidimensional data ranking using self-organising maps and genetic algorithms. In *Proceedings of the International Joint Conference on Neural Networks*, volume 4, pages 2382–2387. Federal University of Goias, School of Electrical Engineering, PIRENEUS Research Group.
- Marttinen, K. (1993). SOM in statistical analysis: Supermarket customer profiling. In Bulsari, A. and Saxén, B., editors, *Proc. of the Symp. on Neural Networks in Finland, Åbo Akademi, Turku, January 21.*, pages 75–80, Helsinki, Finland. Finnish Artificial Intelligence Society.
- Mas Ribes, J. M. and Macq, B. (1998). Speeding up fractal image coding by combined DCT and Kohonen neural net method. In *Proceedings of the 1998 IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP '98*, volume 2, pages 1085–8. IEEE, New York, NY, USA.

- Masaru, T., Sigeru, O., and Toshihisa, K. (2000). Classification of three fatigue levels for bills using acoustic frequency band energy patterns. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-C*, 120:1602–8.
- Mascarilla, L. (1994). Rule extraction based on neural networks for satellite image interpretation. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2315:657–68.
- Masson, E. and Wang, Y.-J. (1990). Introduction to computation and learning in artificial. *European J. Operational Res.*, 47(1):1–28.
- Matera, F. (1998). Learning vector quantization networks. *Subst. Use Misuse*, 33:271–282.
- Mathis, G. and Mousset, E. (1996). Combining a NN-based feature extractor with a classifier-a case study. In *Solving Engineering Problems with Neural Networks. Proceedings of the International Conference on Engineering Applications of Neural Networks (EANN'96)*. *Syst. Eng. Assoc, Turku, Finland*, volume 1, pages 483–6.
- Matsuoka, K. and Kawamoto, M. (1993). A self-organizing neural network for principal component analysis, orthogonal projection and novelty filtering. In *Proc. WCNN'93, World Congress on Neural Networks*, volume II, pages 501–504, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Matsuoka, T. and Ishida, Y. (1995). DB matching-based spoken digit recognition using LVQ. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume V, pages 2900–2903, Piscataway, NJ. IEEE Service Center.
- Matsuyama, Y. (1998). Multiple descent cost competition: restorable self-organization and multi-media information processing. *IEEE Transactions on Neural Networks*, 9(1):106–22.
- Matsuyama, Y. and Tan, M. (1993). Multiply descent cost competitive learning as an aid for multimedia image processing. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2061–2064, Piscataway, NJ. JNNS, IEEE Service Center.
- Mattfeldt, T., Gottfried, H. W., Schmidt, V., and Kestler, H. A. (2000). Classification of spatial textures in benign and cancerous glandular tissues by stereology and stochastic geometry using artificial neural networks. *JOURNAL OF MICROSCOPY-OXFORD*, 198:143–158.
- Mattfeldt, T., Kestler, H. A., Hautmann, R., and Gottfried, H. W. (2001a). Prediction of postoperative prostatic cancer stage on the basis of systematic biopsies using two types of artificial neural networks. *EUROPEAN UROLOGY*, 39(5):530–536.
- Mattfeldt, T., Wolter, H., Kemmerling, R., Gottfried, H. W., and Kestler, H. A. (2001b). Cluster analysis of comparative genomic hybridization (CGH) data using self-organizing maps: Application to prostate carcinomas. *ANALYTICAL CELLULAR PATHOLOGY*, 23(1):29–37.
- Matthews, C. P. and Warwick, K. (1995). Practical application of Self Organizing Feature Maps to process modelling. In *Proc. EANN'95, Engineering Applications of Artificial Neural Networks*, pages 449–452. Finnish Artificial Intelligence Society.
- Matz, G., Albrecht, T., and Hunte, T. (1997). Gas-sensor-array for chemical accidents and fires. In Mira, J., Moreno-Diaz, R., and Cabestany, J., editors, *Sensor 95*, pages 369–74. Springer-Verlag, Berlin, Germany.
- Mauduit, N., Duranton, M., Gobert, J., and Sirat, J. A. (1991). Building up neuromimetic machines with LNeuro 1. 0. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, volume I, pages 602–607, Piscataway, NJ. IEEE; Int. Neural Networks Soc, IEEE Service Center.
- Mauduit, N., Duranton, M., Gobert, J., and Sirat, J. A. (1992). Lneuro 1. 0: a piece of hardware LEGO for building neural network systems. *IEEE Trans. on Neural Networks*, 3(3):414–422.
- Maurer, W. J., Dowla, F. U., and Jarpe, S. P. (1991). Seismic event classification using self-organizing neural networks. In *Australian Conf. on Neural Networks*. Department of Energy, Washington, DC.

- Maurer, W. J., Dowla, F. U., and Jarpe, S. P. (1992a). Seismic event classification using self-organizing neural networks. In Leong, P. and Jabri, M., editors, *Proc. Third Australian Conf. on Neural Networks (ACNN '92)*, pages 162–165, Sydney, Australia. Sydney Univ.
- Maurer, W. J., Dowla, F. U., and Jarpe, S. P. (1992b). Seismic event interpretation using self-organizing neural networks. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 2):950–8.
- Mayberry, M. R. and Miikkulainen, R. (2000). Combining maps and distributed representations for shift-reduce parsing. In *HYBRID NEURAL SYSTEMS*, pages 144–157.
- Mayberry III, M. R. and Miikkulainen, R. (1999a). Combining maps and distributed representations for shift-reduce parsing. In Wermter, S. and Sun, R., editors, *Hybrid Neural Symbolic Integration*. Springer, New York.
- Mayberry III, M. R. and Miikkulainen, R. (1999b). SARDSRN: A neural network shift-reduce parser. In *Proceedings of the Sixteenth International Joint Conference on Artificial Intelligence (IJCAI-99)*, Stockholm, Sweden.
- Mayberry III, M. R. and Miikkulainen, R. (1999c). Using a sequential SOM to parse long-term dependencies. In *Proceedings of the 21st Annual Meeting of the Cognitive Science Society (COGSCI-98)*, Hillsdale, NJ. Erlbaum.
- Mayer, N., Herrmann, J. M., and Geisel, T. (2000). Retinotopy and spatial phase in topographic maps. *Neurocomputing*, 32:447–452.
- Mayer, N., Herrmann, M., Bauer, H. U., and Geisel, T. (1998). A cortical interpretation of assoms. In *ICANN 98. Proceedings of the 8th International Conference on Artificial Neural Networks.*, volume 2, pages 961–6, London. Springer-Verlag.
- Mayol Cuevas, W. W., Juarez Guerrero, J., and Munoz Gutierrez, S. (1998). First approach to tactile texture recognition. *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics.*, 5:4246–4250.
- Mazaeva, N., Ntuen, C., and Lebby, G. (2001). Self-organizing map (SOM) model for mental workload classification. In *Proceedings Joint 9th IFSA World Congress and 20th NAFIPS International Conference. IEEE, Piscataway, NJ, USA*, volume 3, pages 1822–5.
- Mcalernon, P., Slater, J. M., and Lau, K. T. (1999). Mapping of chemical functionality using an array of quartz-crystal microbalances in conjunction with Kohonen self-organizing maps. *Analyst*, 124(6):851–857.
- McAuliffe, J. D., Atlas, L. E., and Rivera, C. (1990). A comparison of the LBG algorithm and Kohonen neural network paradigm for image vector quantization. In *Proc. ICASSP-90, International Conference on Acoustics, Speech and Signal Processing*, volume IV, pages 2293–2296, Piscataway, NJ. IEEE Service Center.
- McDermott, E. (1990). LVQ3 for phoneme recognition. In *Proc. Acoust. Soc. of Japan*, pages 151–152.
- McDermott, E. and Katagiri, S. (1989). Shift-invariant, multi-category phoneme recognition using Kohonen's LVQ2. In *Proc. ICASSP-89, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 81–84, Piscataway, NJ. IEEE Service Center.
- McDermott, E. and Katagiri, S. (1991). LVQ-based shift-tolerant phoneme recognition. *IEEE Trans. on Signal Processing*, 39(6):1398–1411.
- McDermott, E. and Katagiri, S. (1994). Prototype-based minimum classification error/generalized probabilistic descent training for various speech units. *Computer Speech & Language*, 8(4):351–368.

- McGlinchey, S. and Fyfe, C. (1997). An angular quantising self organising map for scale invariant classification. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 91–95. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- McGlinchey, S. and Fyfe, C. (1998). Invariant feature maps for analysis of orientations in image data. In *6th European Symposium on Artificial Neural Networks. ESANN'98. Proceedings*, pages 215–20, Brussels, Belgium. D-Facto.
- McInerney, M. and Dhawan, A. (1994). Training the self-organizing feature map using hybrids of genetic and Kohonen methods. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 641–644, Piscataway, NJ. IEEE Service Center.
- McKinstry, J. and Guest, C. (1996). Self-organizing map develops v1 organization given biologically realistic input. In Del Guerra, A., editor, *1997 IEEE International Conference on Neural Networks. Proceedings*, volume 1, pages 338–43. IEEE, New York, NY, USA.
- McKinstry, J. and Guest, C. (1997). Self-organizing map develops V1 organization given biologically realistic input. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume I, pages 338–343. IEEE Service Center, Piscataway, NJ.
- McMullen, P. R. (2001). A kohonen self-organizing map approach to addressing a multiple objective, mixed-model JIT sequencing problem. *International Journal of Production Economics*, 72(1):59–71.
- Means, R. W. (1994). High speed parallel hardware performance issues for neural network applications. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 1, pages 10–16, New York, NY, USA. HNC Inc. , San Diego, CA, USA, IEEE.
- Medl, A., Perschl, F., and Schmidt, G. (1995). Detection of multiple faults by means of nonlinear observer and learning vector quantization techniques. In Isidori, A., Bittanti, S., Mosca, E., De Luca, A., Di Benedetto, M. D., and Oriolo, G., editors, *Proceedings of the Third European Control Conference. ECC 95*, volume 3, pages 2005–10. Eur. Union Control Assoc, Rome, Italy.
- Medrano-Marques, N. J. and Martin-del Brio, B. (1999). Topology preservation in SOFM: an euclidean versus manhattan distance comparison. In *Foundations and Tools for Neural Modeling. International Work-Conference on Artificial and Natural Neural Networks, IWANN'99. Proceedings, (Lecture Notes in Computer Science Vol.1606)*, volume 1, pages 601–9, Berlin, Germany. Springer-Verlag.
- Meena, K., Ganapathy, V., and Balasubramaniam, A. (1995). Efficient self-organizing map for pattern clustering. *Advances in Modelling & Analysis B*, 33(1):20–32.
- Mei, S. Q. and Xin, W. Z. (2000). Identification of dynamical nonlinear systems using improved self-organization neural network. i. *Electric-Machines-and-Control*, 4:168–70.
- Meinicke, P. and Ritter, H. (2000). Topographic local PCA maps. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. Neuroinformatics Group, University of Bielefeld, ICSC Academic Press.
- Meister, J. (1993). A neural network harmonic family classifier. *J. Acoust. Soc. of America*, 93(3):1488–1495.
- Mel, B. W. (1988). MURPHY: A robot that learns by doing. In Anderson, D. Z., editor, *Proc. First IEEE Conf. on Neural Information Processing Systems*, pages 544–553, Piscataway, NJ. IEEE Service Center.
- Melo, S. L., Caloba, L. P., and Nadal, J. (2000). Arrhythmia analysis using artificial neural network and decimated electrocardiographic data. In *Computers in Cardiology*, pages 73–76, Los Alamitos, CA. Federal Univ of Rio de Janeiro, IEEE.

- Melssen, W. J., Smits, J. R. M., Buydens, L. M. C., and Kateman, G. (1994). Using artificial neural networks for solving chemical problems. II. Kohonen self-organising feature maps and Hopfield networks. *Chemometrics and Intelligent Laboratory Systems*, 23(2):267–91.
- Melssen, W. J., Smits, J. R. M., Rolf, G. H., and Kateman, G. (1993). Two-dimensional mapping of IR spectra using a parallel implemented self-organizing feature map. *Chemometrics and Intelligent Laboratory Systems*, 18(2):195–204.
- Melton, M. S., Phan, T., Reeves, D. S., and Van den Bout, D. E. (1992). The TInMANN VLSI chip. *IEEE Trans. on Neural Networks*, 3(3):375–384.
- Melvin, D. G. and Penman, J. (1995). Fusing human knowledge with neural networks in machine condition monitoring systems. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2492(pt. 1):276–83.
- Memmi, D. and Meunier, J.-G. (2000). Using competitive networks for text mining. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. LEIBNIZ-IMAG-CNRS, LANCI-UQAM, ICSC Academic Press.
- Menard, F. and Fogelman-Soulié, F. (1990). Application of the topological maps algorithm to the recognition of bi-dimensional electrophoresis images. In *Proc. INNC'90, Int. Neural Network Conf.*, pages 99–102, Dordrecht, Netherlands. Kluwer.
- Mendelson, S. and Nelken, I. (2001). Recurrence methods in the analysis of learning processes. *Neural Computation*, 13:1839–61.
- Menendez, C., Ordieres, J. B., and Ortega, F. (1996). Importance of information pre-processing in the improvement of neural network results. *Expert Systems*, 13(2):95–103.
- Meng, Z. and Pao, Y.-H. (2000). Visualization and self-organization of multidimensional data through equalized orthogonal mapping. *IEEE Transactions on Neural Networks*, 11(4):1031–1038.
- Menhaj, M. B. and Jahanian, H. R. (1999). An analytical alternative for som. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1939–42, Piscataway, NJ. IEEE Service Center.
- Mercier, G., Mouchot, M. C., and Cazuguel, G. (1999). Joint classification and compression of hyperspectral images. In *IEEE 1999 International Geoscience and Remote Sensing Symposium. IGARSS'99.*, volume 4, pages 2035–7, Piscataway, NJ. IEEE Service Center.
- Merelo, J. J., Andrade, M. A., Prieto, A., and Moran, F. (1994). Proteinotopic feature maps. *Neurocomputing*, 6(4):443–454.
- Merelo, J. J., Andrade, M. A., Urena, C., Prieto, A., and Morán, F. (1991a). Application of vector quantization algorithms to protein classification and secondary structure computation. In Prieto, A., editor, *Proc. IWANN'91, Int. Workshop on Artificial Neural Networks*, pages 415–421, Berlin, Heidelberg. Springer.
- Merelo, J. J., Andrade, M. A., Prieto, A., and Morán, F. (1991b). Protein classification through a feature map. In *Neuro-Nîmes '91. Fourth Int. Workshop on Neural Networks and Their Applications*, pages 765–768. EC2.
- Merelo, J. J. and Prieto, A. (1995). G- LVQ , a combination of genetic algorithms and LVQ. In Pearson, D. W., Steele, N. C., and Albrecht, R. F., editors, *Artificial Neural Nets and Genetic Algorithms. Proceedings of the International Conference*, pages 92–5. Springer-Verlag, Vienna, Austria.
- Merelo, J. J., Prieto, A., Moran, F., Marabini, R., and Carazo, J. M. (1997). A ga-optimized neural network for classification of biological particles from electron-microscopy images. In Mira, J., Moreno-Diaz, R., and Cabestany, J., editors, *Biological and Artificial Computation: From Neuroscience to Technology. International Work Conference on Artificial and Natural Neural Networks, IWANN'97. Proceedings*, pages 1174–82. Springer-Verlag, Berlin, Germany.

- Merelo, J. J., Prieto, A., Moran, F., Marabini, R., and Carazo, J. M. (1998). Automatic classification of biological particles from electron-microscopy images using conventional and genetic-algorithm optimized learning vector quantization. *Neural Processing Letters*, 8(1):55–65.
- Merelo, J. J., Rivas, V., Romero, G., Castillo, P., Pascual, A., and Carazo, J. M. (1999). Improved automatic classification of biological particles from electron-microscopy images using genetic neural nets. In *Engineering Applications of Bio-Inspired Artificial Neural Networks. International Work-Conference on Artificial and Natural Neural Networks, IWANN'99. Proceedings, (Lecture Notes in Computer Science Vol.1607)*, volume 2, pages 373–82, Berlin, Germany. Springer-Verlag.
- Mereňyi, E., Edgett, K. S., and Singer, R. B. (1996a). Deucalionis regio, mars: Evidence for a new type of immobile weathered soil unit. *ICARUS*, 124:296–307.
- Mereňyi, E., Howell, E. S., Lebofsky, L. A., and Rivkin, A. S. (1997). Prediction of water in asteroids from spectral data shortward of 3 microns. *ICARUS*, 129:421–439.
- Merenyi, E., Singer, R., and Farrand, W. H. (1995). Classification of the LCVF AVIRIS test site with a Kohonen artificial neural network. In *Summaries of the 4th Annual JPL Airborne Geoscience Workshop*, volume 1, pages 117–120.
- Mereňyi, E., Singer, R. B., and Miller, J. S. (1996b). Mapping of spectral variations on the surface of mars from high spectral resolution telescopic images. *ICARUS*, 124:280–295.
- Mereňyi, E., Taranik, J. V., Minor, T. B., and Farrand, W. H. (1996c). Quantitative comparison of neural network and conventional classifiers for hyperspectral imagery. In Green, R. O., editor, *Summaries of the Sixth Annual JPL Airborne Earth Science Workshop, Pasadena, CA, March 4–8*, volume 1: AVIRIS Workshop.
- Merkl, D. (1993). Structuring software for reuse—the case of self-organizing maps. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2468–2471, Piscataway, NJ. JNNS, IEEE Service Center.
- Merkl, D. (1994). *Self-Organization of Software Libraries: An Artificial Neural Network Approach*. PhD thesis, Institut für Angewandte Informatik und Informationssysteme, Universität Wien.
- Merkl, D. (1995a). A connectionist view on document classification. In *Proc. ADC'95, 6th Australian Database Conf.*
- Merkl, D. (1995b). Content-based document classification with highly compressed input data. In Fogelman-Soulie, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 239–244, Nanterre, France. EC2.
- Merkl, D. (1995c). Content-based software classification by self-organization. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume II, pages 1086–1091, Piscataway, NJ. IEEE Service Center.
- Merkl, D. (1995d). The effects of lateral inhibition on learning speed and precision of a self-organizing feature map. In Charles, M. and Latimer, C., editors, *Proceedings of the Sixth Australian Conference on Neural Networks (ACNN'95)*, pages 168–71, Sydney, NSW, Australia. Dept. of Inf. Eng. , Wien Univ. , Austria, Univ. Sydney.
- Merkl, D. (1997a). Exploration of text collections with hierarchical feature maps. *SIGIR Forum*, 7:186–95. Special Issue (20th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval Conf. Date: 27–31 July 1997 Conf. Loc: Philadelphia, PA, USA).
- Merkl, D. (1997b). Lessons learned in text document classification. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 316–321. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Merkl, D. (1998). Text classification with self-organizing maps: SOM lessons learned. *Neurocomputing*, 21(1):61–77.

- Merkel, D. (1999). Document classification with self-organizing maps. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 183–197. Elsevier, Amsterdam.
- Merkel, D. and Hasenauer, H. (1998). Using neural networks to predict individual tree mortality. In *Engineering Benefits from Neural Networks. Proceedings of the International Conference EANN '98*, pages 197–204. Systems Engineering Association, Turku, Finland.
- Merkel, D. and Rauber, A. (1997). Alternative ways for cluster visualization in self-organizing maps. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 106–111. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Merkel, D. and Rauber, A. (1998). Cluster connections: a visualization technique to reveal cluster boundaries in self-organizing maps. In Marinaro, M. and Tagliaferri, R., editors, *Neural Nets WIRN-VIETRI-97. Proceedings of the 9th Italian Workshop on Neural Nets*, pages 324–9. Springer-Verlag London, London, UK.
- Merkel, D. and Rauber, A. (2000a). Digital libraries-classification and visualization techniques. In *Proceedings 2000 Kyoto International Conference on Digital Libraries: Research and Practice. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 434–8.
- Merkel, D. and Rauber, A. (2000b). Uncovering the hierarchical structure of text archives by using an unsupervised neural network with adaptive architecture. In *KNOWLEDGE DISCOVERY AND DATA MINING, PROCEEDINGS*, pages 384–395.
- Merkel, D., Schweighofer, E., and Winiwater, W. (1995). Analysis of legal thesauri based on self-organising feature maps. In *Fourth International Conference on 'Artificial Neural Networks'*, pages 29–34, London, UK. Vienna Univ. of Technol. , Austria, IEE.
- Merkel, D. and Tjoa, A. M. (1994). The representation of semantic similarity between documents by using maps: Application of an artificial neural network to organize software libraries. In *Proc. FID'94, General Assembly Conf. and Congress of the Int. Federation for Information and Documentation*.
- Merkel, D., Tjoa, A. M., and Kappel, G. (1993a). Retrieval of reusable software based on semantic similarity: An artificial neural network approach. Technical report, Institut für Angewandte Informatik und Informationssysteme, Universität Wien, Vienna, Austria.
- Merkel, D., Tjoa, A. M., and Kappel, G. (1993b). Structuring a library of reusable software components using an artificial neural network. In *Proc. AQuIS'93, 2nd International Conference of Achieving Quality in Software, Venice, Italy*, pages 169–180.
- Merkel, D., Tjoa, A. M., and Kappel, G. (1994a). Application of self-organizing feature maps with lateral inhibition to structure a library of reusable software components. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 3905–3908, Piscataway, NJ. IEEE Service Center.
- Merkel, D., Tjoa, A. M., and Kappel, G. (1994b). Learning the semantic similarity of reusable software components. In *Proc. ICSR'94, 3rd International Conference on Software Reuse*, Piscataway, NJ. IEEE Service Center.
- Merkel, D., Tjoa, A. M., and Kappel, G. (1994c). A Self-Organizing Map that learns the semantic similarity of reusable software components. In Tsoi, A. C. and Downs, T., editors, *Proc. ACNN'94, 5th Australian Conf. on Neural Networks*, pages 13–16, St. Lucia, Australia. Univ. Queensland.
- Mereth, A. M., Klahr, H. H., and Schwab, A. J. (1995). Neural-network aided finite-element mesh generation. In *Ninth International Symposium on High Voltage Engineering*, volume 8, pages 8859/1–4. Inst. High Voltage Eng, Graz, Austria.
- Meyer, B. (1998). Self-organizing graphs—a neural network perspective of graph layout. In *Graph Drawing. 6th International Symposium, GD'98. Proceedings*, pages 246–62, Berlin, Germany. Springer-Verlag.

- Meyer, J. W. (1993). A new metric for self-organizing feature maps allows mapping of arbitrary parallel programs. In *Proceedings of the Fifth International Conference on Tools with Artificial Intelligence TAI '93*, pages 452–3, Los Alamitos, CA, USA. Tech. Inf. 2, Tech. Univ. Hamburg-Harburg, Germany, IEEE Computer Society Press.
- Meyer, J. W. (1994). Self-organizing processes. In Buchberger, B. and Volkert, J., editors, *Parallel Processing: CONPAR 94—VAPP VI. Third Joint International Conference on Vector and Parallel Processing Proceedings*, pages 842–53, Berlin, Germany. Tech. Univ. Hamburg-Harburg, Germany, Springer-Verlag.
- Meyer-Base, A. (1996). Quadratic-type lyapunov functions for competitive neural networks with different time-scales. In Touretzky, D. S., Mozer, M. C., and Hasselmo, M. E., editors, *Advances in Neural Information Processing Systems 8. Proceedings of the 1995 Conference*, pages 337–43. MIT Press, Cambridge, MA, USA.
- Meyer-Base, A. (1998a). Dynamic analysis of continuous self-organizing cortical maps. *Proceedings of the SPIE—The International Society for Optical Engineering*, 3390:586–92.
- Meyer-Base, A. (1998b). On the existence and stability of solutions in self-organizing cortical maps. In *1998 IEEE International Joint Conference on Neural Networks Proceedings. IEEE World Congress on Computational Intelligence*, volume 2, pages 1516–19. IEEE, New York, NY, USA.
- Meyering, A. and Ritter, H. (1992a). Learning 3D-shape-perception with local linear maps. In *Proc. IJCNN'92, International Joint Conference on Neural Networks*, volume IV, pages 432–436, Piscataway, NJ. IEEE Service Center.
- Meyering, A. and Ritter, H. (1992b). Learning to recognize 3D-hand postures from perspective pixel images. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume I, pages 821–824, Amsterdam, Netherlands. North-Holland.
- Meyering, A. and Ritter, H. (1992c). Visuelles lernen mit neuronalen Netzen. In Reiss, K., Reiss, M., and Spandl, H., editors, *Maschinelles Lernen—Modellierung von Lernen mit Maschinen*. Springer, Berlin, Heidelberg.
- Mi, Y., Ishii, M., and Tsoukalas, L. H. (2001). Flow regime identification methodology with neural networks and two-phase flow models. *Nuclear Engineering and Design*, 204(1–3):87–100.
- Michaelides, S. C., Pattichis, C. S., and Kleovoulou, G. (2001). Classification of rainfall variability by using artificial neural networks. *International Journal of Climatology*, 21:1401–14.
- Michaelis, B., Schnelting, O., Seiffert, U., and Mecke, R. (1995). Motion estimation using a compounded Self Organizing Map—multi layer perceptron network. In *Proc. WCNN'95, World Congress on Neural Networks*, volume III, pages 103–106. INNS.
- Michaelis, B., Schnelting, O., Seiffert, U., and Mecke, R. (1996a). Adaptive filtering of distorted displacement vector fields using artificial neural networks. In *Proc. ICPR'96, International Conference on Pattern Recognition*, volume IV, pages 335–339. IEEE Press, Piscataway, NJ.
- Michaelis, B., Schnelting, O., Seiffert, U., and Mecke, R. (1996b). Application of artificial neural networks for improved motion analysis. In *Proc. SIPA'96, International Conference on Signal and Image Processing*, pages 248–251. IASTED/Acta Press, Anaheim.
- Michaelis, B., Schnelting, O., Seiffert, U., and Mecke, R. (1996c). Motion estimation using a compounded self-organizing map-multi layer perceptron network. In Binaghi, E., Brivio, P. A., and Rampini, A., editors, *WCNN '95. World Congress on Neural Networks. 1995 International Neural Network Society Annual Meeting*, volume 3, pages 103–6. World Scientific, Singapore.
- Michalopoulou, Z. H., Alexandrou, D., and de Moustier, C. (1995). Application of neural and statistical classifiers to the problem of seafloor characterization. *IEEE Journal of Oceanic Engineering*, 20(3):190–7.

- Michie, D., Spiegelhalter, D. J., and Taylor, C. C., editors (1994). *Machine Learning, Neural and Statistical Classification*. Ellis Horwood, New York.
- Midenet, S. and Grumbach, A. (1990). Supervised learning based on Kohonen's self-organising feature maps. In *Proc. INNC'90 Int. Neural Network Conf.*, volume II, pages 773–776, Dordrecht, Netherlands. Thomsom; SUN; British Computer Society ; et al, Kluwer.
- Mihalik, J. and Labovsky, R. (2001). Neural network approaches for predictive vector quantization of an image. *Neural Network World*, 11(1):33–48.
- Mihelic, F., Ipsic, I., Dobrisek, S., and Pavesic, N. (1992). Feature representations and classification procedures for Slovene phoneme recognition. *Pattern Recognition Letters*, 13(12):879–891.
- Miikkulainen, R. (1987). Self-organizing process based on lateral inhibition and weight redistribution. Technical Report UCLA-AI-87-16, Computer Science Department, University of California, Los Angeles, CA.
- Miikkulainen, R. (1990a). *DISCERN: A Distributed Artificial Neural Network Model of Script Processing and Memory*. PhD thesis, Computer Science Department, University of California, Los Angeles. (Tech. Rep UCLA-AI-90-05).
- Miikkulainen, R. (1990b). A distributed feature map model of the lexicon. In *Proc. 12th Annual Conf. of the Cognitive Science Society*, pages 447–454, Hillsdale, NJ. Lawrence Erlbaum.
- Miikkulainen, R. (1990c). Script recognition with hierarchical feature maps. *Connection Science*, 2(1):83–101.
- Miikkulainen, R. (1991a). A neural network model of script processing and memory. In *Proc. Int. Workshop on Fundamental Res. for the Next Generation of Natural Language Processing*, Kyoto, Japan. ATR International.
- Miikkulainen, R. (1991b). Self-organizing process based on lateral inhibition and synaptic resource redistribution. In Kohonen, T., Mäkitöri, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume I, pages 415–420, Amsterdam, Netherlands. North-Holland.
- Miikkulainen, R. (1992). Trace feature map: a model of episodic associative memory. *Biol. Cyb.*, 66(3):273–282.
- Miikkulainen, R. (1993a). DISCERN: A distributed neural network model of script processing and memory. In *Proc. Third Twente Workshop on Language Technology*, Twente, Netherlands. Computer Science Department, University of Twente. (in press).
- Miikkulainen, R. (1993b). *Subsymbolic Natural Language Processing: An Integrated Model of Scripts, Lexicon, and Memory*. MIT Press, Cambridge, MA.
- Miikkulainen, R. (1994). Integrated connectionist models: Building ai systems on subsymbolic foundations. In Honavar, V. and Uhr, L., editors, *Artificial Intelligence and Neural Networks: Steps toward Principled Integration*, pages 483–508. Academic Press, New York.
- Miikkulainen, R. (1995). Script-based inference and memory retrieval in subsymbolic story processing. *Applied Intelligence*, 5:137–163.
- Miikkulainen, R. (1997). Dyslexic and category-specific impairments in a self-organizing feature map model of the lexicon. *Brain and Language*, 59:334–366.
- Miikkulainen, R. (1999). Text and discourse understanding: The DISCERN system. In Dale, R., Moisl, H., and Somers, H., editors, *A Handbook of Natural Language Processing: Techniques and Applications for the Processing of Language as Text*. Marcel Dekker, New York.
- Miikkulainen, R., Bednar, J. A., Choe, Y., and Sirosh, J. (1999a). Modeling self-organization in the visual cortex. In *Proceedings of WSOM'99 Workshop on Self-Organizing Maps*, New York. Elsevier.

- Miikkulainen, R., Bednar, J. A., Choe, Y., and Sirosh, J. (1999b). Modeling self-organization in the visual cortex. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 243–252. Elsevier, Amsterdam.
- Miikkulainen, R. and Dyer, M. G. (1989). Encoding input/output representations in connectionist cognitive systems. In Touretzky, D. S., Hinton, G. E., and Sejnowski, T. J., editors, *Proc. of the 1988 Connectionist Models Summer School*, pages 347–356, San Mateo, CA. Morgan Kaufmann.
- Miikkulainen, R. and Dyer, M. G. (1991). Natural language processing with modular neural networks and distributed lexicon. *Cognitive Science*, 15:343–399.
- Mikami, D. and Hagiwara, M. (2000). Self-growing learning vector quantization with additional learning and rule extraction abilities. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 4, pages 2895–2900, Piscataway, NJ. Keio Univ, IEEE.
- Mikami, D. and Hagiwara, M. (2001). Self-growing learning vector quantization with additional learning ability. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-C*, 121:1620–6.
- Mikami, S., Wada, M., and Fogarty, T. C. (1995). Learning to achieve co-operation by temporal-spatial fitness sharing. In *1995 IEEE International Conference on Evolutionary Computation*, volume 2, pages 803–7. IEEE, New York, NY, USA.
- Mikami, T. and Wada, M. (2001). Data visualization method for growing self-organizing networks with ant clustering algorithm. In *Advances in Artificial Life. 6th European Conference, ECAL 2001. Proceedings (Lecture Notes in Artificial Intelligence Vol.2159)*. Springer-Verlag, Berlin, Germany, pages 623–6.
- Mikhail, W. B. and Krishnan, V. (2001). Energy-based split vector quantizer employing signal representation in multiple transform domains. *Digital Signal Processing: A Review Journal*, 11(4):359–370.
- Miki, T., Iwasaki, S., Horio, K., and Yamakawa, T. (1999a). Non-linear quantization method depending upon appearance frequency by using self-organising map. In *15th Fuzzy System Symposium (Osaka June 2–5, 1999)*, pages 315–318. in Japanese.
- Miki, T., Izumi, S., and Yamakawa, T. (1999b). Self-organizing method with input vector transformation and its application to shape detection. In *15th Fuzzy System Symposium (Osaka, June 2–5, 1999)*, pages 305–308. in Japanese.
- Miki, T., Oosako, Y., and Yamakawa, T. (1999c). A new interpolation algorithm employing self-organizing map. In *15th Fuzzy System Symposium (Osaka, June 2–5, 1999)*, pages 311–314. in Japanese.
- Mikrut, Z. (2001). Recognition of objects normalized in log-polar space using kohonen networks. In *ISPA 2001. Proceedings of the 2nd International Symposium on Image and Signal Processing and Analysis. In conjunction with 23rd International Conference on Information Technology Interfaces. Univ. Zagreb, Zagreb, Croatia*, pages 308–12.
- Milano, M., Schmidhuber, J., and Koumoutsakos, P. (2001). Active learning with adaptive grids. In *ARTIFICIAL NEURAL NETWORKS-ICANN 2001, PROCEEDINGS*, pages 436–442.
- Millan, J. R., Posenato, D., and Dedieu, E. (2002). Continuous-action q-learning. *Machine-Learning*, 49:247–65.
- Miller, A. and Coe, M. (1996). Star/galaxy classification using Kohonen self-organizing maps. *Royal Astronomical Society, Monthly Notices*, 20(1):293–300.
- Miller, D., Rao, A., Rose, K., and Gersho, A. (1995). A maximum entropy approach for optimal statistical classification. In *Proc. NNSP'95, IEEE Workshop on Neural Networks for Signal Processing*, pages 58–66, Piscataway, NJ. IEEE, IEEE Service Center.

- Miller, D., Rao, A. V., Rose, K., and Gersho, A. (1996). A global optimization technique for statistical classifier design. *IEEE Transactions on Signal Processing*, 44(12):3108–22.
- Min, K. S. and Min, H. L. (1992). Neural network based image compression using AMT DAP 610. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 1):386–93.
- Min-Kyu, S., Murata, J., and Hirasawa, K. (2001). Function approximation using LVQ and fuzzy sets. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 3, pages 1442–1447. Dept. of Elec./Electron. Sys. Eng., Grad. Sch. of Info. Sci./Elec. Eng., Kyushu University.
- Minamimoto, K., Ikeda, K., and Nakayama, K. (1995). Topology analysis of data space using self-organizing feature maps. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume II, pages 789–794, Piscataway, NJ. IEEE Service Center.
- Ming, C. and Minghui, L. (1994). Kohonen neural network-based solution of TSP. *Mini-Micro Systems*, 15(11):35–9.
- Ming, H. Y., Abuja, N., and Kriegman, D. (2000). Face detection using mixtures of linear subspaces. In *Proceedings Fourth IEEE International Conference on Automatic Face and Gesture Recognition*, pages 70–6, Los Alamitos, CA, USA. IEEE Computer Society.
- Ming, H. Y. and Ahuja, N. (1999). A data partition method for parallel self-organizing map. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1929–33, Piscataway, NJ. IEEE Service Center.
- Ming, X. G. and Mak, K. L. (2000). Intelligent setup planning in manufacturing by neural networks based approach. *Journal of Intelligent Manufacturing*, 11(3):311–331.
- Mirelli, V., Nguyen, D., and Nasrabadi, N. M. (1995). Target recognition for FLIR imagery using learning vector quantization and multilayer perceptrons. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2485:110–22. (Automatic Object Recognition V Conf. Date: 19–21 April 1995 Conf. Loc: Orlando, FL, USA Conf. Sponsor: SPIE).
- Mitchison, G. (1995). A type of duality between Self-Organizing Maps and minimal wiring. *Neural Computation*, 7(1):25–35.
- Mitchison, G. J. and Swindale, N. V. (1999). Can hebbian volume learning explain discontinuities in cortical maps? *Neural Computation*.
- Mitiche, A. and Aggarwal, J. K. (1996). Pattern category assignment by neural networks and nearest neighbours rule: a synopsis and a characterization. *International Journal of Pattern Recognition and Artificial Intelligence*, 10(5):393–408.
- Mitiche, A. and Lebidoff, M. (2001). Pattern classification by a condensed neural network. *Neural Networks*, 14(4–5):575–580.
- Mitihata, M., Miyoshi, T., and Masuyama, H. (2000). A consideration on the labels of the self-organizing map after refresh learning. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 233–238.
- Mitra, S. (1994). Fuzzy inferencing with art networks. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 2, pages 1230–4, New York, NY, USA. Dept. of Electr. Eng. , Texas Tech. Univ. , Lubbock, TX, USA, IEEE.
- Mitra, S. and Pal, S. K. (1994). Self-organizing neural network as a fuzzy classifier. *IEEE Transactions on Systems, Man and Cybernetics*, 24(3):385–99.
- Mitra, S. and Pal, S. K. (1996). Fuzzy self-organization, inferencing, and rule generation. *IEEE Transactions on Systems, Man & Cybernetics, Part A [Systems & Humans]*, 26(5):608–20.

- Mitsukura, Y., Fukumi, M., and Akamatsu, N. (2000). Design of genetic fog occurrence forecasting system by using LVQ network. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 5, pages 3678–3681, Piscataway, NJ. Univ of Tokushima, IEEE.
- Mizoguchi, K. and Hagiwara, M. (1999). A novel neural network for four-term analogy based on area representation. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 2, pages 1144–9, Piscataway, NJ. IEEE Service Center.
- Mizoguchi, K. and Hagiwara, M. (2001). A novel neural network for four-term analogy based on area representation. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-C*, 121:1261–7.
- Mizuta, S. and Nakajima, K. (1990). An optimal discriminative training method for continuous mixture density HMMs. In *Proc. ICSLP, International Conference on Spoken Language Processing*, volume 1, pages 245–248, Edmonton, Alberta, Canada. University of Alberta.
- Mocofan, M., Caleanu, C., Lacrama, D., and Alexa, F. (2000). Unsupervised texture image segmentation. In *Proceedings of the 5th Seminar on Neural Network Applications in Electrical Engineering. NEUREL 2000. IEEE & Academic Mind, Piscataway, NJ, USA & Belgrade, Yugoslavia*, pages 101–4.
- Mohsenian, N. and Nasrabadi, N. M. (1992). A neural net approach to predictive vector quantization. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1818(pt. 2):476–87.
- Mohsenian, N. and Nasrabadi, N. M. (1993). Predictive vector quantization using a neural network. In *Proc. ICASSP-93, International Conference on Acoustics, Speech and Signal Processing*, pages V–245–248, Piscataway, NJ. IEEE, IEEE Service Center.
- Mohsenian, N., Rizvi, S. A., and Nasrabadi, N. M. (1993). Predictive vector quantization using a neural network approach. *Optical Engineering*, 32(7):1503–13.
- Molander, S. (1995). 'Blob' analysis of biomedical image sequences: a model-based and an inductive approach. In Andersson, S. I., editor, *Analysis of Dynamical and Cognitive Systems. Advanced Course. Proceedings*, pages 169–87, Berlin, Germany. Dept. of Appl. Electron. , Chalmers Univ. of Technol. , Goteborg, Sweden, Springer-Verlag.
- Moldenhauer, O. and Lüdeke, M. K. B. (2000). NNN—a neural network model for net primary production of plants on a global scale. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. ICSC Academic Press.
- Molina, J. M., Isasi, P., Berlanga, A., and Sanchis, A. (2000). Hydroelectric power plant management relying on neural networks and expert system integration. *Engineering Applications of Artificial Intelligence*, 13(3):357–369.
- Moll, M. and Miikkulainen, R. (1997). Convergence-zone episodic memory: Analysis and simulations. *Neural Networks*, 10:1017–1036.
- Moller, D. P. F. and Berger, A. (2000). Discrete event simulation based on an artificial neural network simulator. In *Simulation and Modelling. Enablers for a Better Quality of Life. 14th European Simulation. Multiconference 2000. SCS, San Diego, CA, USA*, pages 686–90.
- Möller, K. (1993). A multiassociative memory for control. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 593–596, London, UK. Springer.
- Monakhov, O. G. and Chunikhin, O. Y. (1996). Parallel mapping of program graphs into parallel computers by self-organization algorithm. In Wasniewski, J., Dongarra, J., Madsen, K., and Olesen, D., editors, *Applied Parallel Computing. Industrial Computation and Optimization. Third International Workshop, PARA '96 Proceedings*, pages 525–8. Springer-Verlag, Berlin, Germany.

- Mongini, F. and Italiano, M. (2001). TMJ disorders and myogenic facial pain: a discriminative analysis using the mcgill pain questionnaire. *PAIN*, 91(3):323–330.
- Mongini, F., Italiano, M., Raviola, F., and Mossolov, A. (2000). The mcgill pain questionnaire in patients with TMJ pain and with facial pain as a somatoform disorder. *CRANIO-THE JOURNAL OF CRANIOMANDIBULAR PRACTICE*, 18(4):249–256.
- Monnerjahn, J. (1994a). Efficient motor learning by self-organizing maps and implicit linear transformations. In Gaussier, P. and Nicoud, J. D., editors, *Proceedings. From Perception to Action Conference*, pages 416–19, Los Alamitos, CA, USA. Zentrum fur Kognitionswissenschaften, Bremen Univ. , Germany, IEEE Computer Society Press.
- Monnerjahn, J. (1994b). Speeding-up Self-organizing Maps: The quick reaction. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume I, pages 326–329, London, UK. Springer.
- Monnerjahn, J. (1994c). Visuomotorische robotersteuerung mit selbstorganisierenden karten. ZKW Bericht 7/94, Zentrum für Kognitionswissenschaften, Universität Bremen.
- Monnerjahn, J. (1996). Rectangular self-organizing maps with flexible network size. ZKW Bericht 4/96, Zentrum für Kognitionswissenschaften, Universität Bremen.
- Monostori, L. and Bothe, A. (1992). Convergence behaviour of connectionist models in large scale diagnostic problems. In Belli, F. and Radermacher, F. J., editors, *Industrial and Engineering Applications of Artificial Intelligence and Expert Systems. 5th International Conference , IEA/AIE-92*, pages 113–122, Berlin, Heidelberg. Univ. Paderborn; Southwest Texas State Univ; et al, Springer.
- Monte, E. and Hernando, J. (1994). A self organizing feature map based on the fisher discriminant. In *ICSLP 94. 1994 International Conference on Spoken Language Processing*, volume 3, pages 1535–7, Tokyo, Japan. ETSI Telecomm. , Barcelona, Spain, Acoustical Soc. Japan.
- Monte, E., Hernando, J., Miro, X., and Adolf, A. (1996). Text independent speaker identification on noisy environments by means of self organizing maps. In Bunnell, H. T. and Idsardi, W., editors, *Proceedings ICSLP 96. Fourth International Conference on Spoken Language Processing*, volume 3, pages 1804–7. IEEE, New York, NY, USA.
- Monte, E. and Marino, J. B. (1991). A speech recognition system that integrates neural nets and HMM. In Prieto, A., editor, *Proc. IWANN'91, Int. Workshop on Artificial Neural Networks*, pages 370–376, Berlin, Germany. Springer.
- Monte, E., Mariño, J. B., and Leida, E. L. (1992). Smoothing Hidden Markov Models by means of a Self-Organizing Feature Map. In *Proc. ICSLP'92, International Conference on Spoken Language Processing*, volume 1, pages 551–554, Edmonton, Alberta, Canada. University of Alberta.
- Moolman, D. W., Aldrict, C., and van Deventer, J. S. J. (1995). *Neural Networks for Chemical Engineers*, volume 6 of *Computer-Aided Chemical Engineering*, chapter 21, The videographic characterization of flotation froths using neural networks, page 535. Elsevier, Amsterdam.
- Moon, Y. B. and Janowski, R. (1995). Neural network approach for smoothing and categorizing noisy data. *Computers in Industry*, 26(1):23–39.
- Moonasar, V. and Venayagamoorthy, G. K. (1999). Speaker identification using a combination of different parameters as feature inputs to an artificial neural network classifier. In *1999 IEEE Africon. 5th Africon Conference in Africa.*, volume 1, pages 189–94, Piscataway, NJ. IEEE Service Center.
- Moonasar, V. and Venayagamoorthy, G. K. (2001). A committee of neural networks for automatic speaker recognition (ASR) systems. In *Proceedings of the International Joint Conference on Neural Networks*, volume 4, pages 2936–2940. Dept. of Electronics Engineering, M L Sultan Technikon.

- Morabito, M., Macerata, A., Taddei, A., and Marchesi, C. (1991). QRS morphological classification using artificial neural networks. In *Proc. Computers in Cardiology*, pages 181–184, Los Alamitos, CA. Nat. Res. Council of Italy; Eur. Soc. Cardiology; Nat. Inst. Health, IEEE Computer Society Press.
- Moran, A. W., O'Reilly, P. G., and Irwin, G. W. (2001). Probability estimation algorithms for self-validating sensors. *Control Engineering Practice*, 9(4):425–438.
- Moran, A. W., P. O., and Irwin, G. W. (2000). Probability estimation algorithms for self-validating sensors. In *Algorithms and Architectures for Real-Time Control 2000, (AARTC'2000). Proceedings volume from the 6th IFAC Workshop*. Elsevier Science, Kidlington, UK.
- Morasso, P. (1989). Neural models of cursive script handwriting. In *IJCNN: International Joint Conference on Neural Networks. IEEE TAB Neural Network Committee, New York, NY, USA*, volume 2, pages 539–42.
- Morasso, P. (1990). Neural representation of motor synergies. *Advanced Neural Computers*, pages 51–9.
- Morasso, P. (1991). Self-organizing feature maps for cursive script recognition. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1323–1326, Amsterdam, Netherlands. North-Holland.
- Morasso, P. (1992). Neural mechanisms of synergy formation. *Human Movement Science*, 11:169–80.
- Morasso, P. (1997). Active perception and representation of space. In C. Di Natale, A. D. and Davide, F., editors, *Artificial and natural perception*, pages 22–28. World Scientific, Singapore.
- Morasso, P., Baratto, L., Capra, R., Re, C., and Spada, G. (1999a). Use of neural networks for the evaluation of classification power of different posturographic parameters. In *Proceed. EMBEC'99, Vienna*.
- Morasso, P., Baratto, L., Capra, R., and Spada, G. (1999b). Internal models in the control of posture. *Neural Networks*, 12:1173–1180.
- Morasso, P., Barberis, L. Pagliano, S., and Vergano, D. (1993a). Recognition experiments of cursive dynamic handwriting with self-organizing networks. *Pattern Recognition*, 26(3):451–460.
- Morasso, P., D'Alessio, P., and Sanguineti, V. (1992a). Distributed models of motor control. *Functional Neurology*, 4:23–30.
- Morasso, P., Frisone, F., and Bruni, S. (1998a). Fast learning of dynamic compensation in motor control. In L. Niklasson, M. B. and Ziemke, T., editors, *Perspective in Neural Computing (ICANN'98)*, volume II, pages 985–990, Heidelberg. Springer.
- Morasso, P., Frisone, F., and Perico, L. (1998b). Self-organization and cortical dynamics. In L. Niklasson, M. B. and Ziemke, T., editors, *Perspective in Neural Computing (ICANN'98)*, volume I, pages 373–377, Heidelberg. Springer.
- Morasso, P., Gismondi, L., Musante, E., and Pareto, A. (1993b). A hybrid neural architecture for on-line recognition of cursive handwriting. In *Proc. WCNN'93, World Congress on Neural Networks*, volume III, pages 71–74, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Morasso, P., Kennedy, J., Antonj, E., Di Marco, S., and Dordoni, M. (1990a). Self-organisation of an allograph lexicon. In *INNC 90 Paris. International Neural Network Conference*, volume 1, pages 141–4, Dordrecht, Netherlands. Kluwer.
- Morasso, P., Mussa Ivaldi, F. A., Vercelli, G., and Zaccaria, R. (1989). A connectionist formulation of motor planning. *Connectionism in Perspective*, pages 413–20.

- Morasso, P. and Pagliano, S. (1991). A neural architecture for the recognition of cursive handwriting. In Caianiello, E. R., editor, *Fourth Italian Workshop. Parallel Architectures and Neural Networks*, pages 250–254, Singapore. Univ. Salerno; Inst. Italiano di Studi Filosofici, World Scientific.
- Morasso, P., Pagliano, S., and Pareto, A. (1992b). Neural models for handwriting recognition. In Impedovo, S. and Simon, J. C., editors, *From Pixels to Features III*, pages 423–440. Elsevier, Amsterdam.
- Morasso, P., Pareto, A., Pagliano, S., and Sanguineti, V. (1993c). Self-organizing neural network for diagnosis. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 806–809, London, UK. Springer.
- Morasso, P., Pareto, A., and Sanguineti, V. (1992c). SOC—a self-organizing classifier. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume 2, pages 1223–1226. North-Holland, Amsterdam.
- Morasso, P., Pareto, A., and Sanguineti, V. (1993d). Incremental category formation. In *Proc. WCNN'93, World Congress on Neural Networks*, volume III, pages 372–375, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Morasso, P., Sanguineti, V., , and Spada, G. (1995a). Neuromorphic planning and control with a mixture of cost functions. In *Proceedings of the Third European Congress on Intelligent Techniques and Soft Computing (EUFIT'95 Aachen, Germany, August 28–31)*, volume 3, pages 1586–1590.
- Morasso, P. and Sanguineti, V. (1991). Neurocomputing concepts in motor control. In Paillard, J., editor, *Brain and Space*, pages 404–432. Oxford University Press, Oxford.
- Morasso, P. and Sanguineti, V. (1992a). Equilibrium-point and self-organization. *Behavioral and Brain Sciences*, 15:781–782.
- Morasso, P. and Sanguineti, V. (1992b). Neural models of distributed motor control. In Stelmach, G. E. and Requin, J., editors, *Tutorials in Motor Behavior II*, pages 3–30. Elsevier Science Publishers B.V., Amsterdam.
- Morasso, P. and Sanguineti, V. (1992c). Neurocomputing aspects in modelling cursive handwriting. *Acta Psychologica*, 82:213–235.
- Morasso, P. and Sanguineti, V. (1992d). SOBoS—a self-organized body-schema. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume 1, pages 487–490. North-Holland, Amsterdam.
- Morasso, P. and Sanguineti, V. (1993). Coordinating multiple joints. In *Proc. Conf. on Prerational Intelligence—Phenomenology of Complexity Emerging in Systems of Agents Interaction Using Simple Rules*, volume II, pages 71–78, Center for Interdisciplinary Research, University of Bielefeld.
- Morasso, P. and Sanguineti, V. (1994a). Cortical representation of external space. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1247–1252, London, UK. Springer.
- Morasso, P. and Sanguineti, V. (1994b). Models of self-organized topographic maps. In Masulli, F., Morasso, P. G., and Schenone, A., editors, *Neural Networks in Biomedicine. Proceedings of the Advanced School of the Italian Biomedical Physics Association*, pages 89–112, Singapore. DIST, Genova Univ. , Italy, World Scientific.
- Morasso, P. and Sanguineti, V. (1994c). Self-organizing topographic maps and motor learning. In Cliff, D., Husbands, P., Meyer, J. A., and Wilson, S. W., editors, *From Animals to Animats 3*, pages 214–220. MIT Press.
- Morasso, P. and Sanguineti, V. (1996a). How the brain can discover the existence of external egocentric space. *Neurocomputing*, 12:289–310.

- Morasso, P. and Sanguineti, V. (1996b). Self-organizing body-schema for motor planning. *Journal Motor Behavior*, 26:131–148.
- Morasso, P. and Sanguineti, V. (1997a). Learning tidal waves vs learning sensorimotor mappings. *Behavioral and Brain Sciences*, 20:260–261.
- Morasso, P. and Sanguineti, V., editors (1997b). *Self-organization, Cortical Maps and Motor Control*. Elsevier Science Publ., Amsterdam.
- Morasso, P., Sanguineti, V., and Frisone, F. (1997a). A principled approach to a theory of self-organization in cortical maps based on em-learning. In Kasabov, N., editor, *Progress in Connectionist-based Information Systems*, volume 1, pages 166–169. Springer Verlag.
- Morasso, P., Sanguineti, V., and Frisone, F. (1997b). Topologic organization of context fields for sensorimotor coordination. *Behavioral and Brain Sciences*, 21(412–413).
- Morasso, P., Sanguineti, V., Frisone, F., and Perico, L. (1998c). Coordinate-free sensorimotor processing: computing with population codes. *Neural Networks*, 11:1417–1428.
- Morasso, P., Sanguineti, V., and Spada, G. (1995b). Neocortical dynamics in sensorimotor control. In Mira, J., editor, *Brain Processes, Theories and Models*, pages 503–512. MIT Press, Cambridge, Mass, USA.
- Morasso, P., Sanguineti, V., and Spada, G. (1997c). A computational theory of targeting movements based on force fields and topology representing networks. *Neurocomputing*, 15:414–434.
- Morasso, P. and Solari, M. (1991). A neural implementation of analogic planning methods. In *Artificial Neural Networks. Proceedings of the 1991 International Conference. ICANN-91*, volume 2, pages 1281–4, Amsterdam, Netherlands. North-Holland.
- Morasso, P., Vercelli, G., and Zaccaria, R. (1990b). Neuro-computing aspects in motor planning and control. In *Neurocomputing, Algorithms, Architectures and Applications. Proceedings of the NATO Advanced Research Workshop*, Berlin, Germany. Springer-Verlag.
- Morasso, P., Vercelli, G., and Zaccaria, R. (1993e). A hybrid architecture for robot navigation. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1875–1878, Piscataway, NJ. JNNS, IEEE Service Center.
- Morasso, P., Vercelli, G., and Zaccaria, R. (1994). Self-organizing navigation: a hybrid framework for robot motion planning. In Caianiello, E. R., editor, *Neural Nets WIRN Vietri 93—Proceedings of the 5th Italian Workshop on Neural Nets*, Singapore. DIST, Genoa Univ. , Italy, World Scientific.
- Morasso, P. G. and Sanguineti, V. (1999). Cerebellar versus stiffness control. *IEE Colloquium on Self-Learning Robots III Brianstyle Robotics: The Cerebellum Beyond Function Approximation*, 28:1–3.
- Morasso, P. G., Sanguineti, V., and Frisone, F. (1999c). Advances in modeling cortical maps. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 267–278. Elsevier, Amsterdam.
- Morawski, M. (1994). A new method of recognition of distorted objects on binary images. *Prace Instytutu Elektrotechniki*, 42(179):59–71.
- Mori, H., Miyamoto, H., and Tsuzuki, S. (1992a). Estimation of a voltage stability index with a Kohonen neural network. In *ICARCV '92. Second International Conference on Automation, Robotics and Computer Vision*, volume 3, pages INV–11. 5/1–5, Singapore. Dept. of Electr. Eng. , Meiji Univ. , Kawasaki, Japan, Nanyang Technol. Univ.
- Mori, H. and Tamaru, Y. (1992). Hybrid artificial neural networks for voltage instability monitoring in electric power systems. In *Proceedings of the 1992 IEEE International Conference on Systems, Man and Cybernetics*, volume 1, pages 151–6, New York, NY, USA. Dept. of Electr. Eng. , Meiji Univ. , Kawasaki, Japan, IEEE.

- Mori, H., Tamaru, Y., and Tsuzuki, S. (1991). An artificial neural-net based technique for power system dynamic stability with the Kohonen model. In *Conf. Papers. 1991 Power Industry Computer Application Conf. Seventeenth PICA Conf.*, pages 293–301, Piscataway, NJ. IEEE, IEEE Service Center.
- Mori, H., Tamaru, Y., and Tsuzuki, S. (1992b). An artificial neural-net based technique for power system dynamic stability with the Kohonen model. *IEEE Trans. Power Systems*, 7(2):856–864.
- Morita, Y., Obu-Cann, K., Tokutaka, H., Fujimura, K., and Yoshihara, K. (2000). Data mining of chemical analysis. *Shinku/Journal of the Vacuum Society of Japan*, 43(3):263–267.
- Morita, Y., Tokutaka, H., Fujimura, K., and Yoshihara, K. (2001). Chemical spectra analysis system using internet. *Shinku/Journal of the Vacuum Society of Japan*, 44(3):248–251.
- Morlini, I. (1998). Kohonen networks and the influence of training on data structures. In Niranjan, M., Wilson, E., Constantinides, T., and Kung, S.-Y., editors, *Neural Networks for Signal Processing VIII. Proceedings of the 1998 IEEE Signal Processing Society Workshop*, pages 370–9. IEEE, New York, NY, USA.
- Morris, C. W., Boddy, L., and Wilkins, M. F. (1994). Approaches to applying neural networks to the identification of phytoplankton taxa from flow cytometry data. In Dagli, C. H., Fernandez, B. R., Ghosh, J., and Kumara, R. T. S., editors, *Intelligent Engineering Systems Through Artificial Neural Networks*, volume 4, pages 619–27. ASME, New York, NY, USA.
- Morris, R. J. T., Rubin, L. D., and Tirri, H. (1989). A comparison of feedforward and self-organizing approaches to the font orientation problems. In *Proc. IJCNN'89 International Joint Conference on Neural Networks*, volume II, pages 291–197, Piscataway, NJ. IEEE, IEEE Service Center.
- Morris, R. J. T., Rubin, L. D., and Tirri, H. (1990). Neural network techniques for object orientation detection: Solution by optimal feedforward network and learning vector quantization approaches. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 12(11):1107–1114.
- Morris, S. A., Wu, Z., and Yen, G. (2001). A SOM mapping technique for visualizing documents in a database. In *Proceedings of the International Joint Conference on Neural Networks*, volume 3, pages 1914–1919. Sch. of Elec. and Comp. Engineering, Oklahoma State University.
- Morton, P. E., Tumey, D. M., Ingle, D. F., Downey, C. W., and Schnurer, J. H. (1991). Neural network classification of EEG data generated through use of the audio oddball paradigm. In Fox, M. D., Epstein, M. A. F., Davis, R. B., and Alward, T. M., editors, *Proc. IEEE Seventeenth Annual Northeast Bioengineering Conf.*, pages 7–8, Piscataway, NJ. IEEE; Univ. Connecticut; Trinity College/Hartford Graduate Center; Whitaker Found, IEEE Service Center.
- Morton, P. R., Fix, E. L., and Calhoun, G. L. (1996). *Hand Gesture Recognition Using Neural Networks. Final rept. Nov 93-Sep 95*.
- Moscinska, K. and Tyma, G. (1993). Neural network based fingerprint classification. In *Third International Conference on Artificial Neural Networks*, pages 229–32, London, UK. Silesian Tech. Univ. , Gliwice, Poland, IEE.
- Moshou, D., Anthonis, J., and Ramon, H. (1998). An active suspension based on self-organizing maps. In *Intelligent Components for Vehicles (ICV'98). Proceedings volume from the IFAC Workshop*, Kidlington, UK. Elsevier Science.
- Moshou, D., Clijmaus, L., Anthonis, J., Kennes, P., and Ramon, H. (1997a). Neural network based system identification of agricultural machinery. *Mathematics and Control Applications in Agriculture and Horticulture*, pages 151–6.
- Moshou, D., De Ketelaere, B., Coucke, P., De Baerdemacker, J., and Ramon, H. (1997b). A hierarchical self-organizing map for egg breakage classification. *Mathematics and Control Applications in Agriculture and Horticulture*, pages 125–9.

- Moshou, D., De Ketelaere, B., Vrindts, E., Kennes, P., De Baerdemaeker, J., and Ramon, H. (1999). Local linear mapping neural networks for pattern recognition of plants. In *Control Applications and Ergonomics in Agriculture (CAEA'98). Proceedings volume from the IFAC Workshop*, Kidlington, UK. Elsevier Science.
- Moshou, D. and Ramon, H. (1997). Extended self-organizing maps with local linear mappings for function approximation and system identification. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 181–186. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Moshou, D. and Ramon, H. (2000). Wavelets and self-organizing maps in financial time series analysis. *Neural Network World*, 10:231–8.
- Moshou, D., Vrindts, E., De Ketelaere, B., De Baerdemaeker, J., and Ramon, H. (2001). A neural network based plant classifier. *Computers and Electronics in Agriculture*, 31(1):5–16.
- Moszczynski, L. (2000). Classification of measurement results of experiments using statistical software and neural networks. *Pomiary-Automatyka-Kontrola. no.11; Nov. 2000; p.8–10*, pages 8–10.
- Motter, M. A. (1998). *Control of the NASA Langley 16-Foot Transonic Tunnel with the Self-Organizing Feature Map. PhD Dissertation*.
- Motter, M. A. (1999). Control of the NASA Langley 16-foot transonic tunnel with the self-organizing map. In *Proceedings of the 1999 American Control Conference.*, volume 3, pages 1659–60, Piscataway, NJ. IEEE Service Center.
- Motter, M. A. (2000). Predictive multiple model switching control with the self-organizing map. In *Proceedings of the International Joint Conference on Neural Networks*, volume 4, pages 317–322, Piscataway, NJ. NASA Langley Research Cent, IEEE.
- Mou, K.-L. and Yeung, D.-Y. (1994). Gabriel networks: Self-Organizing neural networks for adaptive vector quantization. In *Proc. Int. Symp. on Speech, Image Processing and Neural Networks*, volume II, pages 658–661, Hong Kong. IEEE Hong Kong Chapter of Signal Processing.
- Mouravliansky, N. A., Delibasis, K. K., Matsopoulos, G. K., and Nikita, K. S. (1999). A new method for the elastic registration of CT and MRI head images. In *Proceedings of the First Joint BMES/EMBS Conference. 1999 IEEE Engineering in Medicine and Biology 21st Annual Conference and the 1999 Annual Fall Meeting of the Biomedical Engineering Society.*, volume 2, page 1156, Piscataway, NJ. IEEE Service Center.
- Moya, M. M., Koch, M. W., Fogler, R. J., and Hostetler, L. D. (1992). One-class classifiers and their application to synthetic aperture radar target recognition. Technical Report 92–2104, Sandia National Laboratories, Albuquerque, NM.
- Moya, M. M., Koch, M. W., and Hostetler, L. D. (1993). Ona-class classifier networks for target recognition applications. In *Proc. WCNN'93, World Congress on Neural Networks*, volume III, pages 797–801, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Mozayyani, N., Alanou, V., Dreyfus, J. F., and Vaucher, G. (1995). A spatio-temporal data-coding applied to Kohonen maps. In Fogelman-Soulie, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 75–79, Nanterre, France. EC2.
- Mueller, B., Reinhardt, J., and Strickland, M. T. (1995). *Neural networks 2. updated and corrected ed. . An introduction*. Springer, Berlin, Germany.
- Mujunen, R., Leinonen, L., Kangas, J., and Torkkola, K. (1993). Acoustic pattern recognition of /s/ misarticulation by the self-organizing map. *Folia Phoniatrica*, 45:135–144.

- Muknahallipatna, S. and Chowdhury, B. H. (1994). Identification of coherent generators during transient stability studies by Kohonen network. In *Proceedings of the Twenty-Sixth Annual North American Power Symposium*, volume 1, pages 64–71, Manhattan, KS, USA. Dept. of Electr. Eng. , Wyoming Univ. , Laramie, WY, USA, Kansas State Univ.
- Muknahallipatna, S. and Chowdhury, B. H. (1996). Determination, by Kohonen network, of the generator coherency in dynamic studies. *Electric Machines and Power Systems*, 24(8):869–82.
- Mulier, F. and Cherkassky, V. (1994). Learning rate schedules for self-organizing maps. In *Proceedings of the 12th IAPR International Conference on Pattern Recognition*, volume 2, pages 224–8, Los Alamitos, CA, USA. Dept. of Electr. Eng. , Minnesota Univ. , Minneapolis, MN, USA, IEEE Computer Society Press.
- Mulier, F. and Cherkassky, V. (1995a). Self-organization as an iterative kernel smoothing process. *Neural Computation*, 7(6):1165–1177.
- Mulier, F. M. and Cherkassky, V. S. (1995b). Statistical analysis of self-organization. *Neural Networks*, 8(5):717–727.
- Muller, C., Cottrell, M., Girard, B., Girard, Y., and Mangeas, M. (1994). A neural network tool for forecasting french electricity consumption. In *Proc. WCNN'94, World Congress on Neural Networks*, volume I, pages 360–365, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Muller, C. and Mangeas, M. (1993). Neural networks and times series forecasting: a theoretical approach. In *Proceedings of the 1993 International Conference on Systems, Man and Cybernetics. Systems Engineering in the Service of Humans*, volume 2, pages 590–4, New York, NY, USA. Dept. of Res. & Dev. , Electr. de France, Clamart, France, IEEE.
- Muller, H. and Kapetanovic, T. (1997). Power system security by neural networks. *Elektrotechnik und Informationstechnik*, 114(6):304–7.
- Muneesawang, P. and Guan, L. (2001). Automatic similarity learning using SOTM for CBIR of the WT/VQ coded images. In *IEEE International Conference on Image Processing*, volume 2, pages 749–752. School of Elec. and Info. Engr., The University of Sydney.
- Muñoz, A. and Muruzábal, J. (1995). Self-organizing maps for outlier detection. *Statistics and Econometrics Series* 19 95–53, Universidad Carlos III de Madrid.
- Munoz, A. and Muruzabal, J. (1998). Self-organizing maps for outlier detection. *Neurocomputing*, 18(1):33–60.
- Murai, H., Omatsu, S., and Oe, S. (1995). Principal component analysis for remotely sensed data classified by Kohonen's feature mapping preprocessor and multi-layered neural network classifier. *IEICE Transactions on Communications*, E78-B(12):1604–10.
- Murai, H., Omatsu, S., and Oe, S. (2000). Improvement of classification accuracy by two neural networks and its application to land cover mapping. In *International Geoscience and Remote Sensing Symposium (IGARSS)*, volume 2, pages 685–687, Piscataway, NJ. Shikoku Univ, IEEE.
- Murao, H., Nishikawa, I., and Kitamura, S. (1993). A hybrid neural network system for the rainfall estimation using satellite imagery. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1211–1214, Piscataway, NJ. JNNS, IEEE Service Center.
- Murashima, S., Kashima, M., and Fuchida, T. (1998). Topology preservation of self-organizing maps. *Transactions of the Institute of Electronics, Information and Communication Engineers*, J81D-II(10):2457–66.
- Murashima, S., Kashima, M., and Fuchida, T. (2000). New method for measuring the topology preservation of self-organizing feature maps. *Australian Journal of Intelligent Information Processing Systems*, 6(2):97–104.

- Murdoch, T. and Ball, N. (1996). Machine learning in configuration design. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM*, 10(2):101–113.
- Murtagh, F. (1994). Neural networks and related 'massively parallel' methods for statistics: A short overview. *International Statistical Review*, 64:275–288.
- Murtagh, F. (1995a). Interpreting the Kohonen self-organizing map using contiguity-constrained clustering. *Pattern Recognition Letters*, 16:399–408.
- Murtagh, F. (1995b). Unsupervised catalog classification. *Astronomical Society of the Pacific Conference Series*, 77:264–7. (Astronomical Data Analysis Software and Systems IV Meeting Conf. Date: 25–28 Sept. 1994 Conf. Loc: Baltimore, MD, USA).
- Murtagh, F., Aussem, A., and Kardaun, O. J. W. F. (1996). The wavelet transform in multivariate data analysis. In Prat, A., editor, *COMPSTAT. Proceedings in Computational Statistics. 12th Symposium*, pages 397–402. Physica-Verlag, Heidelberg, Germany.
- Murtagh, F. and Hernández-Pajares, M. (1995a). Clustering moderately-sized datasets using the Kohonen map approach. *Statistics in Transition—Journal of the Polish Statistical Association*, 2:151–162.
- Murtagh, F. and Hernández-Pajares, M. (1995b). The Kohonen self-organizing map method: An assessment. *Journal of Classification*, 12:165–190.
- Muruzabal, J. (2001a). Evolving high-posterior self-organizing maps. In *Connectionist Models of Neurons, Learning Processes, and Artificial Intelligence. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part I (Lecture Notes in Computer Science Vol. 2084)*. Springer-Verlag, Berlin, Germany, pages 701–8.
- Muruzabal, J. (2001b). On the emulation of kohonen's self-organization via single-map metropolis-hastings algorithms. In *Computational Science—ICCS 2001. International Conference. Proceedings, Part II (Lecture Notes in Computer Science Vol.2074)*. Springer-Verlag, Berlin, Germany, pages 346–55.
- Musil, M. and Plesinger, A. (1996). Discrimination between local microearthquakes and quarry blasts by multi-layer perceptrons and Kohonen maps. *Bulletin of the Seismological Society of America*, 86(4):1077–90.
- Mussa Ivaldi, F. A., Morasso, P., N. Hogan, N., and Bizzi, E. (1989). Network models of motor systems with many degrees of freedom. In Fraser, M. D., editor, *Advances in Control Networks and Large Scale Parallel Distributed Processing Models*. Ablex Publ. Corp., Norwood, NJ.
- Mussa Ivaldi, F. A., Morasso, P., and Zaccaria, R. (1988). Kinematic networks. A distributed model for representing and regularizing motor redundancy. *Biological Cybernetics*, 60:1–16.
- Myers, D., Wong, K. W., and Fung, C. C. (2000). Self-organising maps use for intelligent data analysis. *Australian-Journal-of-Intelligent-Information-Processing-Systems*, 6:89–96.
- Myklebust, G. and Solheim, J. G. (1995). Parallel Self-organizing maps for actual applications. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume II, pages 1054–1059, Piscataway, NJ. IEEE Service Center.
- Myklebust, G., Solheim, J. G., and Steen, E. (1995). Speeding up small sized self-organizing maps for use in visualization of multispectral medical images. In *Proceedings of the Eighth IEEE Symposium on Computer-Based Medical Systems*, pages 103–10, Los Alamitos, CA, USA. Norwegian Inst. of Technol. , Trondheim, Norway, IEEE Computer Society Press.
- Myllykoski, P. and Wiklund, O. (1997). Prediction of temper rolling force with neural networks. In *Neural Networks in Engineering Systems. Proceedings of the 1997 International Conference on Engineering Applications of Neural Networks*, volume 1, pages 151–4. Systems Engineering Association, Turku, Finland.

- Nababhushana, T. N., Veeramanju, K. T., and Shivanna (1998). Coherency identification using growing self organizing feature maps (power system stability). In *Proceedings of EMPS '98. 1998 International Conference on Energy Management and Power Delivery*, volume 1, pages 113–16. IEEE, New York, NY, USA.
- Nag, A. K. and Mitra, A. (2001). Recent patterns of economic development in the world: an exploratory data analysis using self-organizing maps. In *Proceedings of the IASTED International Conference. Artificial Intelligence and Applications. ACTA Press, Anaheim, CA, USA*, pages 115–20.
- Nagino, N. and Yamada, S. (2000). Information gathering based on user's interest by multiple web robots. *Transactions-of-the-Institute-of-Electronics,-Information-and-Communication-Engineers-D-I*, pages 780–8.
- Nagrath, I. J., Behera, L., Krishna, K. M., and Rajasekar, K. D. (1996). Real-time navigation of a mobile robot using Kohonen's topology conserving neural network. In Yuan, B. and Tang, X., editors, *1997 8th International Conference on Advanced Robotics. Proceedings. ICAR'97*, pages 459–64. IEEE, New York, NY, USA.
- Naim, A., Ratnatunga, K. U., and Griffiths, R. E. (1997). Galaxy morphology without classification: self-organizing maps. *Astrophysical Journal Supplement Series*, 111(2):357–67.
- Najafi, H. L. and Cherkassky, V. (1993). Adaptive knot placement based on estimated second derivative of regression surface. In Cowan, J. D., Tesauro, G., and Alspector, J., editors, *Proc. NIPS'93, Neural Information Processing Systems*, pages 247–254, San Francisco, CA. Morgan Kaufmann Publishers.
- Najand, S., Lo, Z.-P., and Bavarian, B. (1992). Using the Kohonen topology preserving mapping network for learning the minimal environment representation. In *Proc. IJCNN'92, Int. Joint Conference on Neural Networks*, volume II, pages 87–93, Piscataway, NJ. IEEE Service Center.
- Nakagawa, S. and Hirata, Y. (1990). Comparison among time-delay neural networks, LVQ2, discrete parameter HMM and continuous parameter HMM. In *Proc. ICASSP-90, International Conference on Acoustics Speech and Signal Processing*, volume 1, pages 509–512, Piscataway, NJ. IEEE Service Center.
- Nakagawa, S., Ono, Y., and Hur, K. (1993). Estimation of probability density function and evaluation by vowel recognition. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2223–2226, Piscataway, NJ. JNNS, IEEE Service Center.
- Nakagawa, T. and Ito, T. (1993). Self-organizing feature map with position information and spatial frequency information. In Kamm, C. A., Kuhn, G. M., Yoon, B., Chellappa, R., and Kung, S. Y., editors, *Neural Networks for Processing III Proceedings of the 1993 IEEE-SP Workshop*, pages 40–9, New York, NY, USA. NHK Sci. & Tech. Res. Lab. , Tokyo, Japan, IEEE.
- Nakagawa, T. and Ito, T. (1994). Self-organizing feature map with spatial position and spatial frequency information. *NHK Laboratories Note*, 429:1–15.
- Nakajima, T., Takizawa, H., Kobayashi, H., and Nakamura, T. (1998). Kohonen learning with a mechanism, the law of the jungle, capable of dealing with nonstationary probability distribution functions. *IEICE Transactions on Information and Systems*, E81-D(6):584–91.
- Nakajima, T., Takizawa, H., Kobayashi, H., and Nakamura, T. (1999). A topology preserving neural network for nonstationary distributions. *IEICE Transactions on Information and Systems*, pages 1131–5.
- Nakamura, K., Yamamoto, S., and Itoh, T. (1999). Document image segmentation using neural networks. *Journal of the Institute of Image Electronics Engineers of Japan*, 28:106–15.
- Nakamura, M., Sugimoto, I., and Kuwano, H. (1997). Pattern recognition of dynamic chemical-sensor responses by using LVQ algorithm. In Thorburn, P. and Quaicoe, J., editors, *1997 IEEE International Conference on Systems, Man, and Cybernetics. Computational Cybernetics and Simulation*, volume 4, pages 3036–41. IEEE, New York, NY, USA.

- Nakamura, M., Sugimoto, I., and Kuwano, H. (1998). Pattern recognition of QCM chemical sensor responses using LVQ. *Transactions of the Society of Instrument and Control Engineers*, 34(8):877–83.
- Nakamura, S. and Akabane, T. (1991). A neural speaker model for speaker clustering. In *ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume II, pages 853–856, Piscataway, NJ. IEEE, IEEE Service Center.
- Nakamura, T., Ishida, Y., and Honda, T. (1996). Spoken word recognition using DP matching based on som clustering. In *Solving Engineering Problems with Neural Networks. Proceedings of the International Conference on Engineering Applications of Neural Networks (EANN'96). Syst. Eng. Assoc. Turku, Finland*, volume 1, pages 273–6.
- Nakatsuji, T., Seki, S., Shibuya, S., and Kaku, T. (1994a). Artificial intelligence approach for optimizing traffic signal timing on an urban road network. *Transactions of the Institute of Systems, Control and Information Engineers*, 7(11):470–8.
- Nakatsuji, T., Seki, S., Shibuya, S., and Kaku, T. (1994b). Artificial intelligence approach for optimizing traffic signal timings on urban road network. In *1994 Vehicle Navigation and Information Systems Conference Proceedings*, pages 199–202, New York, NY, USA. Dept. of Civil Eng. , Hokkaido Univ. , Sapporo, Japan, IEEE.
- Nakayama, K. and Chigawa, Y. (1992). Japanese Kanji character recognition using cellular neural networks and modified self-organizing feature map. In *CNNA'92 Proceedings. Second International Workshop on Cellular Neural Networks and their Applications*, pages 191–6, New York, NY, USA. Dept. of Electr. & Comput. Eng. , Kanazawa Univ. , Japan, IEEE.
- Nakayama, K., Chigawa, Y., and Hasegawa, O. (1992). Handwritten alphabet and digit character recognition using feature extracting neural network and modified self-organizing map. In *Proc. IJCNN'92, of the International Joint Conference on Neural Networks*, volume IV, pages 235–240, Piscataway, NJ. IEEE, IEEE Service Center.
- Nakayama, M., Sanematsu, H., and Shimizu, Y. (2000). A document indexing and retrieval method based on a teaching guideline for keyword searching educational information. *Transactions of the Institute of Electronics, Information and Communication Engineers D I*, pages 225–33.
- Namba, M. and Ishida, Y. (1996). Speaker identification using the combination of DP-matching and LVQ clustering techniques. In *Solving Engineering Problems with Neural Networks. Proceedings of the International Conference on Engineering Applications of Neural Networks (EANN'96). Syst. Eng. Assoc. Turku, Finland*, volume 1, pages 261–4.
- Namba, M., Kamata, H., and Ishida, Y. (1997). An approach to speaker identification using DP-matched LVQ neural networks. *Journal of the Acoustical Society of Japan [E]*, 18(2):81–8.
- Nanning, Z. and Jianqing, L. (1995). An adaptive approach to image segmentation based on region features. *Acta Electronica Sinica*, 23(7):98–101.
- Nasrabadi, N. M. and Feng, Y. (1988a). Vector quantization of images based upon a neural-network clustering algorithm. *Proc. SPIE—The International Society for Optical Engineering*, 1001(pt. 1):207–213.
- Nasrabadi, N. M. and Feng, Y. (1988b). Vector quantization of images based upon the Kohonen self-organizing feature maps. In *Proc. ICNN'88, International Conference on Neural Networks*, volume I, pages 101–108, Piscataway, NJ. IEEE Service Center.
- Nasrabadi, N. M. and Feng, Y. (1988c). Vector quantization of images based upon the Kohonen self-organization feature maps. *Neural Networks*, 1(1 SUPPL):518.
- Nassery, P. and Faez, K. (1998). Signature pattern recognition using moments invariant and a new fuzzy LVQ model. *IEICE Transactions on Information and Systems, IMAGE Signal Proc*, (12):1483–1493.

- Nassery, P. and Faez, K. (2000a). Dynamic model for the seismic signals processing and application in seismic prediction and discrimination. *IEICE Transactions on Information and Systems*, E83-D(12):2098–2106.
- Nassery, P. and Faez, K. (2000b). Seismic events discrimination using a new FLVQ clustering model. *IEICE Transactions on Information and Systems*, (7):1533–1539.
- Nathan, K. S. and Silverman., H. F. (1991). Classification of unvoiced stops based on formant transitions prior to release. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 445–448, Piscataway, NJ. IEEE, IEEE Service Center.
- Natori, N. and Nishimura, K. (1995). A practical neural network for handwritten character recognition built by dynamics-based active learning and self-organization of feedback mechanism. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume VI, pages 3089–3094, Piscataway, NJ. IEEE Service Center.
- Natowicz, R. (1995). Kohonen's self-organizing maps for contour segmentation of gray level and color images. In Mira, J. and Sandoval, F., editors, *From Natural to Artificial Neural Computation. International Workshop on Artificial Neural Networks. Proceedings*, pages 890–7. Springer-Verlag, Berlin, Germany.
- Natowicz, R., Alves de Barros, M., Akil, M., and Bosio, F. (1994). Real time segmentation of image sequences by self-organizing feature map: method and reconfigurable architecture. *IFIP Transactions A [Computer Science and Technology]*, A-44:267–76.
- Natowicz, R., Bergen, L., and Gas, B. (1995). Kohonen's maps for contour and 'region-like' segmentation of gray level and color images. In Pearson, D. W., Steele, N. C., and Albrecht, R. F., editors, *Artificial Neural Nets and Genetic Algorithms. Proceedings of the International Conference*, pages 360–3. Springer-Verlag, Vienna, Austria.
- Natowicz, R., Bosio, F., and Sean, S. (1993). Segmentation of image sequences using self-organizing feature maps. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 1002–1005, London, UK. Springer.
- Natowicz, R. and Sokol, R. (1993). Self-organizing feature maps for image segmentation. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation. International Workshop on Artificial Neural Networks. IWANN '93 Proceedings*, pages 626–31, Berlin, Germany. ESIEE Lab. de Traitement de l'Inf. et des Syst. , Noisy le Grand, France, Springer-Verlag.
- Natschläger, T., Ruf, B., and Schmitt, M. (2002). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Unsupervised Learning and Selg-Organization in Networks of Spiking Neurons. Physica-Verlag Heidelberg.
- Naude, J., Nel, N., and Kruger, J. (2000a). Initial results of stick-slip modelling and characterization by self-organizing map (SOM) to improve machine tool design. *SOUTH AFRICAN JOURNAL OF SCIENCE*, 96(9–10):499–504.
- Naude, J., Nel, N., and Kruger, J. (2000b). Stick-slip modelling by SOM (self-organising map): towards the intelligent design and selection of friction surface and material in machine tool design. *Prace-Naukowe-Instytutu-Technologii-Maszyn-i-Automatyzacji-Politechniki-Wroclawskiej,-Seria:-Konferencje.*, pages 69–80.
- Naylor, J., Higgins, A., Li, K. P., and Schmoldt, D. (1988). Speaker recognition using Kohonen's self-organizing feature map algorithm. *Neural Networks*, 1:311.
- Naylor, J. and Li, K. P. (1988). Analysis of a neural network algorithm for vector quantization of speech parameters. *Neural Networks*, 1:310.

- Naylor, J. A. (1990). A neural network algorithm for enhancing delta modulation/LPC tandem connections. In *Proc. ICASSP-90, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 211–224, Piscataway, NJ. IEEE, IEEE Service Center.
- Naylor, J. A., Huang, W. Y., Nguyen, M., and Li, K. P. (1992). The application of neural networks to wordspotting. In Singh, A., editor, *Conference Record of The Twenty-Sixth Asilomar Conference on Signals, Systems and Computers*, volume 2, pages 1081–5, Los Alamitos, CA, USA. ITT Aerosp. Commun. Div. , San Diego, CA, USA, IEEE Computer Society Press.
- Naylor, J. A. and Rossen, M. L. (1992). Neural network word/false-alarm discriminators for improved keyword spotting. In *IJCNN International Joint Conference on Neural Networks*, volume 2, pages 296–301, New York, NY, USA. ITT ACD, San Diego, CA, USA, IEEE.
- Nazlibilek, S., Erkmen, A., and Demirekler, M. (1992). A neural controller for local activation in fractal information network. In Levis, A. H. and Stephanou, H. E., editors, *Distributed Intelligence Systems. Selected Papers from the IFAC Symposium*, pages 153–8, Oxford, UK. Dept. of Electr. Eng. , Middle East Tech. Univ. , Ankara, Turkey, Pergamon.
- Neagoe, V. and Fratila, I. (1999). A neural segmentation of multispectral satellite images. In *Computational Intelligence. Theory and Applications. International Conference, 6th Fuzzy Days. Proceedings*, pages 334–41, Berlin, Germany. Springer-Verlag.
- Neagoe, V. E. (1996). A circular Kohonen network for image vector quantization. In D'Hollander, E., Peters, F. J., Jouber, G. R., and Trystram, D., editors, *Parallel Computing: State-of-the-Art and Perspectives*, pages 677–80. Elsevier, Amsterdam, Netherlands.
- Negri, S. and Belanche, L. A. (2001). Heterogeneous kohonen networks. In *Connectionist Models of Neurons, Learning Processes, and Artificial Intelligence. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part I (Lecture Notes in Computer Science Vol. 2084)*. Springer-Verlag, Berlin, Germany, pages 243–52.
- Nehmzow, U. (1992). *Experiments in Competence Acquisition for Autonomous Mobile Robots*. PhD thesis, University of Edinburgh, Department of Artificial Intelligence, Edinburgh, UK.
- Nehmzow, U. (1995). Some initial experiments in self-organization and dynamic sensing. In *IEE Colloquium on Design and Development of Autonomous Agents (Digest No. 1995/211)*, pages 5/1–3, London, UK. Dept. of Comput. Sci. , Manchester Univ. , UK, IEE.
- Nehmzow, U. (2000). Map building through self-organisation for robot navigation. In *Advances in Robot Learning. 8th European Workshop on Learning Robots, EWLR-8. Proceedings (Lecture Notes in Artificial Intelligence Vol.1812)*. Springer-Verlag, Berlin, Germany, pages 1–22.
- Nehmzow, U. and Smithers, T. (1990). Mapbuilding using self-organizing networks in 'really useful robots'. Technical Report DAI-489, Department of Artificial Intelligence, University of Edinburgh, Edinburgh, Scotland.
- Nehmzow, U. and Smithers, T. (1992). Using motor actions for location recognition. In Varela, F. J. and Bourgine, P., editors, *Toward a Practice of Autonomous Systems. Proc. First European Conf. on Artificial Life*, pages 96–104, Cambridge, MA, USA. Cite des Sci. Ind. ; Banque de France; Fondation de France; Electr. France; CEMAGREF; CNR; AFCET; CREA; OFFILIB; Sun Microsyst, MIT Press.
- Nehmzow, U., Smithers, T., and Hallam, J. (1991). Location recognition in a mobile robot using self-organising feature maps. In Schmidt, G., editor, *Information Processing in Autonomous Mobile Robots. Proc. of the Int. Workshop*, pages 267–277, Berlin, Heidelberg. VDI/VDE; German Soc. Meas. Autom, Springer.
- Nelson, D. J., Chang, S.-J., and Chen, M. (1992). Modeling the time of occurrence of electric utility peak loads. In Luker, P., editor, *Proc. 1992 Summer Computer Simulation Conference. Twenty-Fourth Annual Computer Simulation Conference*, pages 217–212, San Diego, CA. SCS, SCS.

- Neto, J. S., do Nascimento Neto, S., and de O. Nascimento, F. A. (1997). Improved dynamic bit allocation in image coding using a self-organizing map with learning vector quantization. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume III, pages 1501–1505. IEEE Service Center, Piscataway, NJ.
- Neto, J. S., doN. Neto, S., and deO. Nascimento, F. A. (1996). Dynamic bit allocation in image coding using a self-organizing map with learning vector quantization. In Caloba, L. P., Diniz, P. S. R., de Querioz, A. C. M., and Watanabe, E. H., editors, *38th Midwest Symposium on Circuits and Systems. Proceedings*, volume 2, pages 858–61. IEEE, New York, NY, USA.
- Neumann, E. K., Wheeler, D. A., Burnside, J. W., Bernstein, A. S., and Hall, J. C. (1990). A technique for the classification and analysis of insect courtship song. In *Proc. of the IJCNN, Washington*, volume 2, pages 257–262.
- Neuwirth, S., Tenhagen, A., and Lippe, W. M. (1998). Kohonen-SOM for the neuro-computer synapse 1 N110. In *Proceedings of the 5th International Conference on Soft Computing and Information/Intelligent Systems. Methodologies for the Conception, Design and Application of Soft Computing*, volume 1, pages 77–80, Singapore. World Scientific.
- Ng, A. and Smith, K. A. (2000). LOGSOM: Web usage mining by a self-organizing map. In *Smart Engineering System Design: Neural Networks, Fuzzy Logic, Evolutionary Programming, Data Mining, and Complex Systems. Vol.10. Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2000)*. ASME, New York, NY, USA, pages 495–500.
- Ngan, S. C. and Hu, X. (1999). Analysis of functional magnetic resonance imaging data using self-organizing mapping with spatial connectivity. *Magnetic Resonance in Medicine*, 41:939–46.
- Nguyen, P. T. A., Romagnoli, R., Fekete, P., Arnison, M. R., Guan, L., and Cogswell, C. (1998). A self-organizing map for extracting features of chromosomes in microscopy images. In *Proceedings of the Ninth Australian Conference on Neural Networks (ACNN'98)*. Univ. Queensland, Brisbane, Qld., Australia, pages 158–62.
- Nie, J. and Linkens, D. A. (1994). Fast self-learning multivariable fuzzy controllers constructed from a modified cpn network. *International Journal of Control*, 60(3):369–93.
- Niebur, D. and Germond, A. J. (1991a). Power flow classification for static security assessment. In El-Sharkawi, M. A. and II, R. J. M., editors, *Proc. First Int. Forum on Applications of Neural Networks to Power Systems*, pages 83–88, Piscataway, NJ. IEEE; NSF; Pugent Power & Light; EPRI, IEEE Service Center.
- Niebur, D. and Germond, A. J. (1991b). Power system static security assessment using the Kohonen neural network classifier. In *Conf. Papers. 1991 Power Industry Computer Application Conference. Seventeenth PICA Conference.*, pages 270–277, Piscataway, NJ. IEEE, IEEE Service Center.
- Niebur, D. and Germond, A. J. (1991c). Unsupervised neural net classification of power system static security states. In *Proc. Third Symp. on Expert Systems Application to Power Systems*, Tokyo & Kobe.
- Niebur, D. and Germond, A. J. (1992a). Power system static security assessment using the Kohonen neural network classifier. *IEEE Trans. Power Systems*, 7(2):865–872.
- Niebur, D. and Germond, A. J. (1992b). Unsupervised neural net classification of power system static security states. *Int. J. Electrical Power & Energy Systems*, 14(2–3):233–242.
- Nielsen, C. F. and Passmore, P. J. (2000a). Achieving accurate colour image segmentation in 2d and 3d with LVQ classifiers and partial adaptable class-specific representation. In *Proceedings Fifth IEEE Workshop on Applications of Computer Vision. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 72–8.

- Nielsen, C. F. and Passmore, P. J. (2000b). A solution to the problem of segmentation near edges using adaptable class-specific representation. In *Proceedings 15th International Conference on Pattern Recognition. ICPR-2000. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 1, pages 436–40.
- Nightingale, C. and Hutchinson, R. A. (1990). Artificial neural nets and their application to image processing. *British Telecom Technology J.*, 8(3):81–93.
- Niki, K. (1997). Self-organizing information retrieval system on the web: SirWeb. In Kasabov, N., Kozma, R., Ko, K., O’Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 881–884. Springer, Singapore.
- Nines, E. L., Gardner, J. W., and Potter, C. E. R. (1997). Olfactory feature maps from an electronic nose. *Measurement and Control*, 30(9):262–8.
- Ning, L., Sixin, M., and Youfu, L. (2001). Effective feature analysis for color image segmentation. *Transactions-of-Nanjing-University-of-Aeronautics-&-Astronautics*, 18:206–12.
- Nishida, T., Kurogi, S., and Saeki, T. (2001a). Adaptive vector quantization using re-initialization method. *Transactions-of-the-Institute-of-Electronics,-Information-and-Communication-Engineers-D-II*, pages 1503–11.
- Nishida, T., Kurogi, S., and Saeki, T. (2001b). An analysis of competitive and reinitialization learning for adaptive vector quantization. In *Proceedings of the International Joint Conference on Neural Networks*, volume 2, pages 978–983. Dept. of Control Engineering, Kyushu Institute of Technology.
- Nishina, T., Hagiwara, M., and Nakagawa, M. (1994). Fuzzy inference neural networks which automatically partition a pattern space and extract fuzzy if-then rules. In *Proceedings of the Third IEEE Conference on Fuzzy Systems. IEEE World Congress on Computational Intelligence*, volume 2, pages 1314–19, New York, NY, USA. Dept. of Electr. Eng. , Keio Univ. , Yokohama, Japan, IEEE.
- Nissinen, A. S. and Hyötyniemi, H. (1998a). Evolutionary self-organizing map. In *6th European Congress on Intelligent Techniques and Soft Computing. EUFIT ’98*, volume 3, pages 1596–600, Aachen, Germany. Verlag Mainz.
- Nissinen, A. S. and Hyötyniemi, H. (1998b). Evolutionary training of behavior-based self-organizing map. In *1998 IEEE International Conference on Evolutionary Computation Proceedings. IEEE World Congress on Computational Intelligence*, pages 660–5. IEEE, New York, NY, USA.
- Nissinen, A. S., Hyotyniemi, H., and Koivo, H. (2000). Evolutionary self-organizing model bank. In *Control Systems, Preprints, Conference*, pages 267–270, Norcross, GA. Helsinki Univ of Technology, TAPPI Press.
- Nogami, Y., Jyo, Y., Yoshioka, M., and Omatsu, S. (1997). Remote sensing data analysis by Kohonen feature map and competitive learning. In *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, volume 1, pages 524–529, Piscataway, NJ. Institute of Electrical and Electronics Engineers, Inc.
- Nogami, Y., Jyo, Y., Yoshioka, M., and Omatsu, S. (1998). Remote sensing data analysis by using Kohonen feature map and competitive learning. *Transactions of the Institute of Systems, Control and Information Engineers*, 11(9):508–13.
- Nolker, C. and Ritter, H. (2000). Parametrized SOMs for hand posture reconstruction. In *Proceedings of the IEEE-INNS-ENNS International Joint Conference on Neural Networks. IJCNN 2000. Neural Computing: New Challenges and Perspectives for the New Millennium. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 4, pages 139–44.

- Nomura, T. and Miyoshi, T. (1995). An adaptive rule extraction with the fuzzy self-organizing map and a comparison with other methods. In *Proceedings of ISUMA—NAFIPS '95 The Third International Symposium on Uncertainty Modeling and Analysis and Annual Conference of the North American Fuzzy Information Processing Society*, pages 311–16, Los Alamitos, CA, USA. Software Lab., Sharp Corp., Nara, Japan, IEEE Computer Society Press.
- Nomura, T. and Miyoshi, T. (1996a). An adaptive fuzzy rule extraction using hybrid model of the fuzzy self-organizing map and the genetic algorithm with numerical chromosomes. In Yamakawa, T. and Matsumoto, G., editors, *Methodologies for the Conception, Design, and Application of Intelligent Systems. Proceedings of the 4th International Conference on Soft Computing*, volume 1, pages 70–3. World Scientific, Singapore.
- Nomura, T. and Miyoshi, T. (1996b). An adaptive rule extraction with the fuzzy self-organizing map and a comparison with other methods. *Japanese Journal of Fuzzy Theory and Systems*, 8(2):283–98.
- Nor, K. B. M. (1995). Neural networks based on simultaneous equations. *Malaysian Journal of Computer Science*, 8(1):25–42.
- Nordita (1989). Nordita-DIKU conf. on vision. Conf. proceedings in journal *Physica Scripta* Vol. 39(1).
- Nordström, T. (1992). Designing parallel computers for Self Organizing Maps. In *Proc. DSA-92, Fourth Swedish Workshop on Computer System Architecture*.
- Nordström, T. (1995). *Highly Parallel Computers for Artificial Neural Networks*. PhD thesis, Luleå University of Technology, Luleå, Sweden.
- Nour, M. A. and Madey, G. R. (1996). Heuristic and optimization approaches to extending the Kohonen self organizing algorithm. *European Journal of Operational Research*, 93(2):428–48.
- Novic, M. and Zupan, J. (1995). Investigation of infrared spectra-structure correlation using Kohonen and counterpropagation neural network. *Journal of Chemical Information and Computer Sciences*, 35(3):454–66.
- Noyons, E. C. M. and van Raan, A. F. J. (1998). Monitoring scientific developments from a dynamic perspective: self-organized structuring to map neural network research. *Journal of the American Society for Information Science*, 49(1):68–81.
- Nunes, J. F. and Marques, J. S. (1992). A comparison of two low bit rate image coders. *European Trans. on Telecommunications and Related Technologies*, 3(6):599–603.
- Nunes de Castro, L. and Von Zuben, F. J. (1999). An improving pruning technique with restart for the Kohonen self-organizing feature map. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1916–19, Piscataway, NJ. IEEE Service Center.
- Obach, M., Wagner, R., Werner, H., and Schmidt, H. H. (2001). Modelling population dynamics of aquatic insects with artificial neural networks. *ECOLOGICAL MODELLING*, 146(1–3):207–217.
- Obaidat, M. S., Khalid, H., and Sadoun, B. (1998). Ultrasonic transducer characterization by neural networks. *Information Sciences*, 107(1):195–215.
- Obaidat, M. S. and Khalid, O. (1995). Performance evaluation of neural network paradigms for the characterization of ultrasonic transducers. In *ICECS '95. International Conference on Electronics, Circuits and Systems. Proceedings*, pages 370–6. Higher Council for Sci. & Technol, Amman, Jordan.
- Obaidat, M. S. and Sadoun, B. (1997). Verification of computer users using keystroke dynamics. *IEEE Transactions on Systems, Man, and Cybernetics. Part B: Cybernetics*, 27(2):261–269.

- Obermayer, K. (1992). Neural pattern formation and self-organizing maps. *Annales du Groupe CARNAC*, 5:91–104.
- Obermayer, K. (1993a). *Adaptive neuronale Netze und ihre Anwendung als Modelle der Entwicklung kortikaler Karten*. Infix Verlag, Sankt Augustin, Germany.
- Obermayer, K. (1993b). Modelling the formation of sensory representation in the brain. In *Proc. Conf. on Prerational Intelligence—Phenomenology of Complexity Emerging in Systems of Agents Interaction Using Simple Rules*, volume I, pages 117–135, Center for Interdisciplinary Research, University of Bielefeld.
- Obermayer, K., Blasdel, G. G., and Schulten, K. (1991a). A neural network model for the formation and for the spatial structure of retinotopic maps, orientation-and ocular dominance columns. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, pages 505–511, Amsterdam, Netherlands. Elsevier.
- Obermayer, K., Blasdel, G. G., and Schulten, K. (1992a). A statistical mechanical analysis of self-organization and pattern formation during the development of visual maps. *Physical Review A [Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics]*, 45(10):7568–7589.
- Obermayer, K., Heller, H., Ritter, H., and Schulten, K. (1990a). Simulation of self-organizing neural nets: A comparison between a transputer ring and a Connection Machine CM-2. In Wagner, A. S., editor, *NATUG 3: Transputer Res. and Applications 3*, pages 95–106, Amsterdam, Netherlands. North American Transputer Users Group, IOS Press.
- Obermayer, K., Ritter, H., and Schulten, K. (1990b). Large-scale simulation of a Self-organizing neural network: Formation of a SOM topographic map. In Eckmiller, R., Hartmann, G., and Hauske, G., editors, *Parallel Processing in Neural Systems and Computers*, pages 71–74, Amsterdam, Netherlands. North-Holland.
- Obermayer, K., Ritter, H., and Schulten, K. (1990c). Large-scale simulations of self-organizing neural networks on parallel computers: Application to biological modelling. *Parallel Computing*, 14:381–404.
- Obermayer, K., Ritter, H., and Schulten, K. (1990d). A neural network model for the formation of topographic maps in the CNS: Development of receptive fields. In *Proc. IJCNN-90, International Joint Conference of Neural Networks, Washington, DC*, pages 423–429, Piscataway, NJ. IEEE Service Center.
- Obermayer, K., Ritter, H., and Schulten, K. (1991b). Development and spatial structure of cortical feature maps: A model study. In Lippmann, R. P., Moody, J. E., and Touretzky, D. S., editors, *Advances in Neural Information Processing Systems 3*, pages 11–17. Morgan Kaufmann, San Mateo, CA.
- Obermayer, K., Ritter, H., and Schulten, K. (1992b). A model for the development of the spatial structure of retinotopic maps and orientation columns. *IEICE Trans. Fund. Electr. Comm. Comp. Sci.*, E75-A(5):537–545. Reprinted in *The Principles of Organization in Organisms—Santa Fe Institute Studies in the Sciences of Complexity, Vol. XII*. A. Baskin and J. Mittenthal, Eds. (Addison Wesley, 1991).
- Obermayer, K., Ritter, H. J., and Schulten, K. J. (1990e). A principle for the formation of the spatial structure of cortical feature maps. *Proc. Natl Acad. of Sci. , USA*, 87:8345–8349.
- Obermayer, K., Schulten, K., and Blasdel, G. G. (1992c). A comparison of a neural network model for the formation of brain maps with experimental data. In Moody, J. E., Hanson, S. J., and Lippmann, R. P., editors, *Advances in Neural Information Processing Systems 4*, pages 83–90. Morgan Kaufmann, San Mateo, CA.
- O'Brien, J. and Reeves, C. (1993). Comparison of neural network paradigms for condition monitoring. In Rao, R. B. K. N. and Trmal, G. J., editors, *Proc. 5th Int. Congress on Condition Monitoring and Diagnostic Engineering Management*, pages 395–400, Bristol. UK. University of the West of England.

- Obu-Cann, K., Fujimura, K., and Tokutaka, H. (2000a). Clustering by SOM (self-organising maps), MST (minimal spanning tree) and MCP (modified counter propagation). *Australian-Journal-of-Intelligent-Information-Processing-Systems*, 6:72–81.
- Obu-Cann, K., Fujimura, K., Tokutaka, H., Ohkita, M., Inui, M., and Yamada, S. (2001a). Exploring power transformer database using self-organising maps (SOM) and minimal spanning tree (MST). In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 132–9. Springer.
- Obu Cann, K., Fujimura, K., Tokutaka, H., Ohkita, M., I., and S., Y. (2002). Data mining with self-organising maps (SOM) and minimal spanning tree (MST). *International-Journal-of-Knowledge-Based-Intelligent-Engineering-Systems*, 6:40–7.
- Obu-Cann, K., Fujimura, K., Tokutaka, H., and Yoshihara, K. (2000b). Data mining from chemical spectra data using self-organising maps. *Neural Network World*, 10:217–30.
- Obu-Cann, K., Fujimura, K., Tokutaka, H., Yoshihara, K., and of SASJ, M. M. G. (2000c). Application of self-organizing maps to data mining using chamical spectra. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 311–8.
- Obu-Cann, K., Kikuo, F., Heizo, T., Masaaki, O., and I., M. (2001b). SOM an approach to data mining of power transformer database. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-C*, 121:1126–32.
- Obu-Cann, K., Morita, Y., Fujimura, K., Tokutaka, H., Ohkita, M., and Inui, M. (2000d). Data mining of power transformer database using self organising maps. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 201–6.
- Obu-Cann, K., Tokutaka, H., Fujimura, K., and Yoshihara, K. (1999). Chemical analysis of AES, XPS and XRD data using self-organising maps. *Journal of Surface Analysis*, 5(1):208–211.
- Obu-Cann, K., Tokutaka, H., Fujimura, K., and Yoshihara, K. (2000e). Chemical analysis using XPS data and self-organizing maps. *Surface and Interface Analysis*, 30(1):181–184.
- Oddo, L. A., Doucette, P., and Agouris, P. (2000). Automated road extraction via the hybridization of self-organization and model based techniques. In *Proceedings 29th Applied Imagery Pattern Recognition Workshop. IEEE Comput. Soc, Los Alamitos, CA, USA*.
- Odorico, R. (1996). Neural 2.00—a program for neural net and statistical pattern recognition. *Computer Physics Communications*, 96(2):314–330.
- Odorico, R. (1997). Learning vector quantization with training count (LVQ TC). *Neural Networks*, 10(6):1083–8.
- Oe, S., Hashida, M., Enokihara, M., and Shinohara, Y. (1994). A texture segmentation method using unsupervised and supervised neural networks. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2415–2418, Piscataway, NJ. IEEE Service Center.
- Oe, S., Hashida, M., and Shinohara, Y. (1993). A segmentation method of texture image by using neural network. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume I, pages 189–192, Piscataway, NJ. JNNS, IEEE Service Center.
- Oehler, K. L. and Gray, R. M. (1995). Combining image compression and classification using vector quantization. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 17:461–473.
- Ogi, H., Izui, Y., and Kobayashi, S. (1992). Application of neural networks to fault detection systems for gas-insulated switchgear. *Mitsubishi Denki Giho*, 66(12):63–67. (in Japanese).
- Oh, K. and Chae, S.-I. (1996). Incremental adaptive learning algorithm with initial generic knowledge. *Journal of the Korean Institute of Telematics and Electronics*, 33B(2):187–96.

- Oh, K. S., Feng, Y., Kaneko, K., Makinouchi, A., and Bae, S. H. (2001a). SOM-based r\*-tree for similarity retrieval. In *Proceedings Seventh International Conference on Database Systems for Advanced Applications. DASFAA 2001. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 182–9.
- Oh, K. S., Kaneko, K., and Makinouchi, A. (2001b). A method of highspeed similarity retrieval based on self-organizing maps. *Research Reports on Information Science and Electrical Engineering of Kyushu University*, 6(1):77–82.
- Oh, S. K., Kim, M. S., and Lee, J. J. (2001c). Adapting the migration topology of macro-micro evolutionary algorithm by clustering the individuals using self-organizing map. In *IEEE International Symposium on Industrial Electronics*, volume 1, pages 308–311. Dept. of Elec. Eng. and Comp. Sci., Korea Adv. Inst. Sci. and Technol.
- Oh, S. K., Kim, M. S., and Lee, J. J. (2001d). Adapting the migration topology of macro-micro evolutionary algorithm by clustering the individuals using self-organizing map. In *ISIE 2001. 2001 IEEE International Symposium on Industrial Electronics Proceedings. IEEE, Piscataway, NJ, USA*, volume 1, pages 308–11.
- Oh, S.-Y., Choi, D.-H., and Lee, I.-S. (1995). A hybrid learning neural network architecture with locally activated hidden layer for fast and accurate mapping. *Neurocomputing*, 7(3):211–24.
- Oh, S.-Y. and Song, J.-M. (1990). A dynamically reconfiguring backpropagation neural network and its application to the inverse kinematic solution of robot manipulators. *Trans. of the Korean Inst. of Electrical Engineers*, 39(9):985–996. (in Korean).
- Oh, S. Y. and Yi, I. S. (1991). A backpropagation neural networks with locally activated hidden layer for fast and accurate mapping. In *IJCNN-91, International Joint Conference on Neural Networks, Seattle*, volume II, page 1000, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Ohberg, F., Johansson, K., Bergenheim, M., Pedersen, J., and Djupsjobacka, M. (1996). A neural network approach to real-time spike discrimination during simultaneous recording from several multi-unit nerve filaments. *Journal of Neuroscience Methods*, 64(2):181–7.
- Ohta, R. and Saito, T. (2001). A growing self-organizing algorithm for dynamic clustering. In *International Joint Conference on Neural Networks, Washington, DC, USA, July 15–19*. CD-ROM.
- Oiming, C. and Shujing, Z. (1993). Adaptive segmenting and clustering of quasi-stationary signal. *Acta Electronica Sinica*, 21(6):51–8.
- Oja, E. (1984). New aspects on the subspace methods of pattern recognition. In *Electron. Electr. Eng. Res. Stud. Pattern Recognition and Image Processing Ser. 5*, pages 55–64. Letchworth, UK.
- Oja, E. (1991). Neural networks in image processing and analysis. In *Proc. Symp. on Image Sensing and Processing in Industry*, pages 143—152, Tokyo, Japan. Pattern Recognition Society of Japan.
- Oja, E. (1992a). Neural computing. In *Proc. NORDDATA*, pages 306—316, Helsinki, Finland. Tietojenkäsittelyliitto.
- Oja, E. (1992b). Self-organizing maps and computer vision. In Wechsler, H., editor, *Neural Networks for Perception, vol. 1: Human and Machine Perception*, pages 368–385. Academic Press, New York, NY.
- Oja, E. (1994). Neural networks—advantages and applications. In Carlsson, C., Järvi, T., and Reponen, T., editors, *Proc. Conf. on Artificial Intelligence Res. in Finland*, number 12 in Conf. Proc. of Finnish Artificial Intelligence Society, pages 2–8, Helsinki, Finland. Finnish Artificial Intelligence Society.

- Oja, E. (1995). *Neural Networks for Chemical Engineers*, volume 6 of *Computer-Aided Chemical Engineering*, chapter 2, Unsupervised neural learning. Elsevier, Amsterdam.
- Oja, E. and Kaski, S. (1999). *Kohonen Maps*. Elsevier, Amsterdam.
- Oja, E., Laaksonen, J., Koskela, M., and Brandt, S. (1999). Self-organizing maps for content-based image database retrieval. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 349–362. Elsevier, Amsterdam.
- Oja, E. and Valkealahti, K. (1995). Compressing higher-order co-occurrences for texture analysis using the self-organizing map. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume II, pages 1160–1164, Piscataway, NJ. IEEE Service Center.
- Oja, E. and Valkealahti, K. (1996). Co-occurrence map: quantizing multidimensional texture histograms. *Pattern Recognition Letters*, 17(7):723–30.
- Oja, E. and Valkealahti, K. (1997). Local independent component analysis by the self-organizing map. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 553–8. Springer-Verlag, Berlin, Germany.
- Oja, E. and Wang, L. (1996a). Neural fitting: Robustness by anti-Hebbian learning. *Neurocomputing*, 12:155–170.
- Oja, E. and Wang, L. (1996b). Robust fitting by nonlinear neural units. *Neural Networks*, 9:435–444.
- Oja, E., Xu, L., and Kultanen, P. (1990). Curve detection by an extended self-organizing map and the related RHT method. In *Proc. INNC'90, Int. Neural Network Conference*, volume I, pages 27–30, Dordrecht, Netherlands. Kluwer.
- Oja, M., Nikkilä, J., Törönen, P., Wong, G., Castrén, E., and Kaski, S. (2002). Exploratory clustering of gene expression profiles of mutated yeast strains. In Zhang, W. and Shmulevich, I., editors, *Computational And Statistical Approaches To Genomics*. Kluwer Academic Publishers. In press.
- Ojala, T., Ruoppila, V. T., and Vuorimaa, P. (1995). Identification of fuzzy ARX model. In Touretzky, D. S., Mozer, M. C., and Hasselmo, M. E., editors, *WCNN '95. World Congress on Neural Networks. 1995 International Neural Network Society Annual Meeting*, volume 2, pages 713–16. MIT Press, Cambridge, MA, USA.
- Ojala, T. and Vuorimaa, P. (1995). Modified Kohonen's learning laws for RBF network. In Pearson, D. W., Steele, N. C., and Albrecht, R. F., editors, *Artificial Neural Nets and Genetic Algorithms. Proceedings of the International Conference*, pages 356–9. Springer-Verlag, Vienna, Austria.
- Oka, S., Takefuji, Y., and Suzuki, T. (2000). Feature extraction of IKONOS images by self-organization topological map. In *Proceedings of the International Conference on Imaging Science, Systems, and Technology. CISST'2000. CSREA Press - Univ. Georgia, Athens, GA, USA*, volume 2, pages 687–91.
- Okada, N., Maruki, Y., Yoshida, A., Shimizu, Y., and E., K. (1999). A self-organizing visuo-motor map for a redundant manipulator in environments with obstacles. In *Proceedings of the Ninth International Conference on Advanced Robotics. 99 ICAR. Japan Robot Assoc, Tokyo, Japan*, pages 517–22.
- Okada, N., Minamoto, K., and Kondo, E. (2001). Collision avoidance for a visuo-motor system with a redundant manipulator using a self-organizing visuo-motor map. In *Proceedings of the IEEE International Symposium on Assembly and Task Planning*, pages 104–109. Graduate Sch. of Eng., Kyushu University.
- Olafsson, S. (1992). Dynamical neural networks for speech recognition. *BT Technology J.*, 10(3):48–58.

- Olbert, C., Schaale, M., and Furrer, R. (1995). Mapping of forest fire damages using imaging spectroscopy. *Advances in Space Research*, 15(11):115–22.
- Ollikainen, V., Backstrom, C., and Kaski, S. (2002). Electronic editor: automatic content-based sequential compilation of newspaper articles. *NEUROCOMPUTING*, 43:91–106.
- Omatu, S., Fujinaka, T., Kosaka, T., Yanagimoto, H., and Yoshioka, M. (2001). Italian lira classification by LVQ. In *Proceedings of the International Joint Conference on Neural Networks*, volume 4, pages 2947–2951. Osaka Prefecture University.
- Omatu, S. and Yoshida, T. (1993). Pattern classification for remote sensing using neural network. In Fujimura, S., editor, *IGARSS '93. 1993 International Geoscience and Remote Sensing Symposium (IGARSS'93). Better Understanding of Earth Environment*, volume 2, pages 899–901, New York, NY, USA. Dept. of Inf. Sci. & Intelligent Syst. , Tokushima Univ. , Japan, IEEE.
- Omatu, S. and Yosida, T. (1991). Pattern classification for remote sensing using neural network. In *1991 IEEE International Joint Conference on Neural Networks*, volume I, pages 653–658, Piscataway, NJ. IEEE; Int. Neural Networks Soc, IEEE Service Center.
- Ong, S. H., Yeo, N. C., Lee, K. H., Venkatesh, Y. V., and Cao, D. M. (2002). Segmentation of color images using a two-stage self-organizing network. *Image and Vision Computing*, 20(4):279–289.
- Onodera, H., Takeshita, K., and Tamaru, K. (1990). Hardware architecture for Kohonen network. In *1990 IEEE Int. Symp. on Circuits and Systems*, volume II, pages 1073–1077, Piscataway, NJ. IEEE Service Center.
- Onodera, H., Takeshita, K., and Tamaru, K. (1993). Hardware architecture for Kohonen network. *IEICE Transactions on Electronics*, E76-C(7):1159–66.
- Onwubolu, G. C. (1998). Artificial neural network-based approach for design of parts for cellular manufacturing. *Artificial Intelligence in Design '98. Kluwer Academic Publishers, Dordrecht, Netherlands; 1998; x+679 pp.p.661–78*, pages 661–78.
- Onwubolu, G. C. (1999). Design of parts for cellular manufacturing using neural network-based approach. *Journal of Intelligent Manufacturing*, 10:251–65.
- Oommen, B. J., Altinel, I. K., and Aras, N. (1995). Arbitrary distance function estimation using vector quantization. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume VI, pages 3062–3067, Piscataway, NJ. IEEE Service Center.
- Openshaw, S. and Turton, I. (1996). A parallel Kohonen algorithm for the classification of large spatial datasets. *Computers & Geosciences*, 22(9):1019–26.
- Oravec, M. (1994). Kohonen and Grossberg learning in neural networks for image compression. *Journal on Communications*, 45:77–9.
- Oravec, M. (1997). Experiments with neural networks for compression of medical x-ray images. In Kocur, D., Levicky, D., and Marchevsky, S., editors, *DSP '97. 3rd International Conference on Digital Signal Processing. Proceedings of the Conference*, pages 177–80. Tech. Univ. Kosice, Kosice, Slovakia.
- Oravec, M. (2001). Multilayer perceptron, radial basis function network, and self-organizing map in the problem of face recognition. *Journal-of-Electrical-Engineering*, 52:284–8.
- Oravec, M. and Jurica, P. (2001). Face recognition based on feature-extraction by self-organizing map and classification by RBF networks. In *Proceedings VIPromCom-2001. 3rd International Symposium on Video Processing and Multimedia Communications. Croatian Soc. Electron. Marine—ELMAR, Zadar, Croatia*, pages 87–90.
- Oravec, M. and Podhradsky, P. (1995). Image compression using neural networks. *Journal of Electrical Engineering*, 46(9):309–17.

- Oreski, S., Zupan, J., and Glavic, P. (2001). Neural network classification of phase equilibrium methods. *CHEMICAL AND BIOCHEMICAL ENGINEERING QUARTERLY*, 15(1):3–12.
- Orlando, J., Mann, R., and Haykin, S. (1990a). Radar classification of sea-ice using traditional and neural classifiers. In *Proc. IJCNN-90, International Joint Conference of Neural Networks, Washington, DC*, pages 263–266, Hillsdale, NJ. Lawrence Erlbaum.
- Orlando, J. R., Mann, R., and Haykin, S. (1990b). Classification of sea-ice images using a dual-polarized radar. *IEEE J. Oceanic Engineering*, 15(3):228–237.
- Ornes, C. and Sklansky, J. (1997). A visual multi-expert neural classifier. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume III, pages 1448–1453. IEEE Service Center, Piscataway, NJ.
- Ornes, C. and Sklansky, J. (1998). Visual neural classifier. *IEEE Transactions on Systems, Man, and Cybernetics. Part B: Cybernetics*, 28(4):620–625.
- Ortega, A., Marco, S., Perera, A., Sundic, T., Pardo, A., and Samitier, J. (2001). An intelligent detector based on temperature modulation of a gas sensor with a digital signal processor. *Sensors and Actuators, B: Chemical*, 78(1–3):32–39.
- Ortega, A., Marco, S., Sundic, T., and Samitier, J. (2000). New pattern recognition systems designed for electronic noses. *Sensors and Actuators, B: Chemical*, 69(3):302–307.
- Orwell, J., Turnes, R., Carreira, M. J., Cabello, D., and Boyce, J. (1997). Towards self-organized feature maps from Gabor filter responses. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 220–226. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Orwig, R. E., Chen, H., and Nunamaker, J. J. F. (1997). A graphical, self-organizing approach to classifying electronic meeting output. *Journal of the American Society for Information Science*, 48(2):157–70.
- Oshima, N., Ogawa, T., and Takefuji, Y. (1997). Airport allocation problems in mongolia using neural networks. In Dale, M., Kowalczyk, A., Slaviero, R., and Szymanski, J., editors, *Proceedings of the Eighth Australian Conference on Neural Networks (ACNN'97)*, pages 197–201. Telstra Res. Lab, Clayton, Vic. , Australia.
- Osogami, Y. and Ishida, Y. (1996). Speech synthesis using zero-phase impulse responses clustered by som. In *Solving Engineering Problems with Neural Networks. Proceedings of the International Conference on Engineering Applications of Neural Networks (EANN'96)*. Syst. Eng. Assoc, Turku, Finland, volume 1, pages 281–4.
- Osowski, S. (1996). *Sieci Neuronowe. W ujciu algorytmicznym*. Wydawnictwa Naukowo-Techniczne, Warszawa, Poland.
- Osowski, S. and Brudzewski, K. (2000). Fuzzy self-organizing hybrid neural network for gas analysis system. *IEEE Transactions on Instrumentation and Measurement*, 49(2):424–428.
- Osowski, S., Herault, J., and Demartines, P. (1995). Fault localization in analogue circuits using Kohonen neural network. *Bulletin of the Polish Academy of Sciences. Technical Sciences*, 43(1):111–124.
- Osowski, S. and Linh, T. H. (2000). Fuzzy clustering neural network for classification of ECG beats. In *Proceedings of the International Joint Conference on Neural Networks*, volume 5, pages 26–30, Piscataway, NJ. Warsaw Univ of Technology, IEEE.
- Osowski, S. and Nghia, D. D. (2000). Neural networks for classification of 2-d patterns. In *WCC 2000—ICSP 2000. 2000 5th International Conference on Signal Processing Proceedings. 16th World Computer Congress 2000. IEEE, Piscataway, NJ, USA*, volume 3, pages 1568–71.

- Osowski, S. and Siwek, K. (1997). Kohonen neural network for load forecasting in power system. In *Proceedings of the XXth National Conference on Circuit Theory and Electronic Networks, Kolobrzeg, Poland, October 21–24*, volume 2, pages 611–616. Technical University of Koszalin, Department of Electronics, Kolobrzeg, Poland.
- Ossen, A. (1993). Learning topology-preserving maps using self-supervised backpropagation. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 586–591, London, UK. Springer.
- Otte, R. (1998). *Selbstorganisierende Merkmalskarten zur multivariaten Datenanalyse komplexer technischer Prozesse*. PhD thesis, Universität Dortmund.
- Otte, R. and Goser, K. (1997a). New approaches of process visualization and analysis in power plants. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 44–50. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Otte, R. and Goser, K. (1997b). New approaches of process visualization and process analysis. *Automatisierungstechnische Praxis*, 39(12):28, 31–2, 35–9.
- Ouellette, R., Noda, H., Niimi, M., and Kawaguchi, E. (2000). Topological ordered color table for BPCS-steganography using indexed color images. In *Proceedings-of-the-SPIE –The-International-Society-for-Optical-Engineering. vol.3971*, volume 3971, pages 502–9.
- Ouellette, R., Noda, H., Niimi, M., and Kawaguchi, E. (2001). Topological ordered color table for BPCS steganography using indexed color images. *Transactions-of-the-Information-Processing-Society-of-Japan*, 42:110–13.
- Outten, A. G., Roberts, S. J., and Stokes, M. J. (1996). Analysis of human muscle activity. In *IEE Colloquium on Artificial Intelligence Methods for Biomedical Data Processing (Ref. No. 1996/100)*, pages 7/1–6. IEE, London, UK.
- Ouzounov, A. (1997). Text-independent speaker identification using a hybrid neural network and conformity approach. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume IV, pages 2098–2102. IEEE Service Center, Piscataway, NJ.
- Ouzounov, A. and Spirov, L. (1997). An experimental comparative study of two approaches for text-independent speaker identification. In Soldek, J., editor, *Applications of Computer Systems. Proceedings of the Fourth International Conference*, pages 86–91. Wydawnictwo i Drukarnia Inst. Inf. Politech. Szczecinskiej, Szczecin, Poland.
- Ouzounov, A. P. (1996). Text-independent speaker identification using a hybrid neural network. *Problemy na Tekhnicheskata Kibernetika i Robotikata*, 44:28–35.
- Owechko, Y. (1996). *Optical Neural Networks Based on Distributed Holographic Gratings. Final rept. 30 Sep 92–28 Feb 96*.
- Owechko, Y. and Soffer, B. H. (1995a). Holographic neurocomputer utilizing laser-diode light source. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2565:12–19. (Optical Implementation of Information Processing Conf. Date: 10–11 July 1995 Conf. Loc: San Diego, CA, USA Conf. Sponsor: SPIE).
- Owechko, Y. and Soffer, B. H. (1995b). An optical neural network based on distributed holographic gratings for ATR. In *1995 IEEE International Conference on Neural Networks Proceedings*, volume 5, pages 2450–5. IEEE, New York, NY, USA.
- Owens, J. and Hunter, A. (2000). Application of the self-organising map to trajectory classification. In *Proceedings Third IEEE International Workshop on Visual Surveillance. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 77–83.

- Owsley, L. and Atlas, L. (1993). Ordered vector quantization for neural network pattern classification. In Kamm, C. A., Kung, S. Y., Yoon, B., Chellappa, R., and Kung, S. Y., editors, *Neural Networks for Signal Processing 3—Proceedings of the 1993 IEEE Workshop*, pages 141–150, Piscataway, New Jersey, USA. IEEE, IEEE Service Center.
- Owsley, L., Atlas, L., and Bernard, G. (1995). Feature extraction networks for dull tool monitoring. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 5, pages 3355–8, New York, NY, USA. Dept. of Electr. Eng. , Washington Univ. , Seattle, WA, USA. IEEE.
- Owsley, L., Atlas, L., and Bernard, G. (1996). Self-organizing feature maps with perfect organization. In *1996 IEEE International Conference on Acoustics, Speech, and Signal Processing Conference Proceedings*, volume 6, pages 3557–60. IEEE, New York, NY, USA.
- Owsley, L. M. D., Atlas, L. E., and Bernard, G. D. (1997). Self-organizing feature maps and hidden Markov models for machine-tool monitoring. *IEEE Transactions on Signal Processing*, 45(11):2787–98.
- Ozdemir, D. and Akarun, L. (2001). Fuzzy algorithms for combined quantization and dithering. *IEEE TRANSACTIONS ON IMAGE PROCESSING*, 10(6):923–931.
- Ozdemir, K. and Erkmen, A. M. (1993). A modified Kohonen’s neural network algorithm. In *Proc. WCNN’93, World Congress on Neural Networks*, volume II, pages 513–516, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Padgett, M. L., Josephson, E. M., White, C. R., and Duffield, D. W. (1995). Clustering, simulation and neural networks in real-world applications. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2492(pt. 1):562–72.
- Padgett, M. L., Werbos, P. J., and Kohonen, T. (1997). Strategies and tactics for the application of neural networks to industrial electronics. In Irwin, J. D., editor, *The Industrial Electronics Handbook*, pages 835–852. CRC Press.
- Pagès, G. (1993). Voronoï tesselation, space quantization algorithms and numerical integration. In Verleysen, M., editor, *Proc. ESANN’93, European Symp. on Artificial Neural Networks*, pages 221–228, Brussels, Belgium. D facto conference services.
- Pahalawatta, P. V. and Jouny, I. (2000). Web-based handwritten character recognition system. In *Proceedings of the IASTED International Conference. Signal and Image Processing. IASTED/ACTA Press, Anaheim, CA, USA*, pages 179–85.
- Pai, P.-F. (2000). Neuro-fuzzy approach in parts clustering. *Annual Conference of the North American Fuzzy Information Processing Society—NAFIPS*, pages 138–142.
- Pai, P. F. and Lee, E. S. (2001). Parts clustering by self-organizing map neural network in a fuzzy environment. *Computers and Mathematics with Applications*, 42(1–2):179–188.
- Pajares, G., Cruz, J. M., and Aranda, J. (1998a). Stereo matching based on the self-organizing feature-mapping algorithm. *Pattern Recognition Letters*, 19(3–4):319–30.
- Pajares, G., de la Cruz, J. M., and Lopez Orozco, J. A. (1998b). Improving stereovision matching through supervised learning. *Pattern Analysis and Applications*, 1:105–20.
- Pajunen, P. (1996a). An algorithm for binary blind source separation. Technical Report A36, Helsinki University of Technology, Laboratory of Computer and Information Science, Espoo, Finland.
- Pajunen, P. (1996b). Nonlinear independent component analysis by self-organizing maps. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 815–20. Springer-Verlag, Berlin, Germany.

- Pajunen, P., Hyvärinen, A., and Karhunen, J. (1996). Nonlinear blind source separation by self-organizing maps. In *Proc. of the 1996 International Conference on Neural Information Processing (ICONIP'96)*, volume 2, pages 1207–1210. Springer-Verlang.
- Pajunen, P. and Karhunen, J. (1997). Self-organizing maps for independent component analysis. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 96–99. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Pal, N. R. and Bezdek, J. C. (1993). Extensions of self-organizing feature maps for improved visual displays. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2441–2447, Piscataway, NJ. IEEE Service Center.
- Pal, N. R., Bezdek, J. C., and Hathaway, R. J. (1996). Sequential competitive learning and the fuzzy c-means clustering algorithms. *Neural Networks*, 9(5):787–796.
- Pal, N. R., Bezdek, J. C., and Tsao, E. C. K. (1992). Improving convergence and performance of Kohonen's self-organizing scheme. In *SPIE Vol. 1710, Science of Artificial Neural Networks*, pages 500–509, Bellingham, WA. SPIE.
- Pal, N. R., Bezdek, J. C., and Tsao, E. C. K. (1993). Generalized clustering networks and Kohonen's self-organizing scheme. *IEEE Transactions on Neural Networks*, 4(4):549–557.
- Pal, N. R., Bezdek, J. C., and Tsao, E. C. K. (1995). Errata to Generalized clustering networks and Kohonen's self-organizing scheme. *IEEE Transactions on Neural Networks*, 6(2):521–521.
- Pal, N. R. and Eluri, V. K. (1998). Two efficient connectionist schemes for structure preserving dimensionality reduction. *IEEE Transactions on Neural Networks*, 9(6):1142–1154.
- Pal, N. R. and Kumar, E. V. (1997). Neural networks for dimensionality reduction. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 1, pages 221–224. Springer, Singapore.
- Pal, N. R. and Laha, A. (2000). A multi-prototype classifier and its application to remotely sensed image analysis. *Australian-Journal-of-Intelligent-Information-Processing-Systems*, 6:110–18.
- Pal, S. K. and Mitra, S. (1994). Fuzzy versions of Kohonen's net and MLP-based classification: performance evaluation for certain nonconvex decision regions. *Information Sciences*, 76(3–4):297–337.
- Palakal, M. J., Murthy, U., Chittajallu, S. K., and Wong, D. (1995). Tonotopic representation of auditory responses using self-organizing maps. *Mathematical and Computer Modelling*, 22(2):7–21.
- Palisson, P., Zegadi, N., Peyrin, F., and Unterreiner, R. (1994). Unsupervised multiresolution texture segmentation using wavelet decomposition. In *Proceedings ICIP-94*, volume 2, pages 625–9, Los Alamitos, CA, USA. CNRS, Inst. Nat. des Sci. Appliquées, Villeurbanne, France, IEEE Computer Society Press.
- Palmieri, F. (1994). Hebbian learning and self-association in nonlinear neural networks. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 2, pages 1258–63, New York, NY, USA. Connecticut Univ. , CT, USA, IEEE.
- Pan, H.-L. and Chen, Y.-C. (1992). Liver tissues classification by artificial neural networks. *Pattern Recognition Letters*, 13(5):355–368.
- Panayiotopoulos, T. and Zacharis, N. Z. (2001). Machine learning and intelligent agents. *Machine learning and its applications. Advanced lectures*. Springer-Verlag, Berlin, Germany; 2001; viii+324 pp.p.281–5, pages 281–5.

- Panayiotou, P. A., Pattichis, C., Jenkins, D., and Plimmer, F. (2000). Modular artificial neural network valuation system. In *Proceedings of the Mediterranean Electrotechnical Conference—MELECON*, volume 2, pages 457–460, Piscataway, NJ. Land Information Cent, IEEE.
- Panchanathan, S., Yeap, T. H., and Pilache, B. (1992). A neural network for image compression. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 1):376–85.
- Pang, V. and Palaniswami, M. (1990). Pattern classification using a self-organizing neural network. In *IEEE TENCON'90: 1990 IEEE Region 10 Conf. on Computer and Communication Systems*, volume II, pages 562–566, Piscataway, NJ. IEEE, IEEE Service Center.
- Pao, Y.-H. (1989). *Adaptive Pattern Recognition and Neural Networks*. Addison-Wesley, Reading, MA.
- Paoloni, A. (1990). Neural networks for speech recognition. In Paoloni, A., editor, *Proc. 1st Workshop on Neural Networks and Speech Processing, November 89, Roma.*, pages 5–17.
- Papadimitriou, S., Mavroudi, S., Vladutu, L., and Bezerianos, A. (2001). Ischemia detection with a self-organizing map supplemented by supervised learning. *IEEE Transactions on Neural Networks*, 12(3):503–515.
- Papadourakis, G., Vourkas, M., Micheloyannis, S., and Jervis, B. (1996). Use of artificial neural networks for clinical diagnosis. *Mathematics and Computers in Simulation*, 40(5–6):623–35.
- Papadourakis, G. M., Bebis, G. N., and Georgopoulos, M. (1990). Machine printed character recognition using artificial neural networks. In *Proc. INNC'90, Int. Neural Network Conf.*, volume I, page 392, Dordrecht, Netherlands. Thomsom; SUN; British Computer Society ; et al, Kluwer.
- Papamarkos, N. (1999). Color reduction using local features and a Kohonen self-organized feature map neural network. *International Journal of Imaging Systems and Technology*, 10(5):404–409.
- Papamarkos, N. and Atsalakis, A. (2000). Gray-level reduction using local spatial features. *Computer Vision and Image Understanding*, 78(3):336–350.
- Papamarkos, N., Atsalakis, A. E., and Strouthopoulos, C. P. (2002). Adaptive color reduction. *IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics*, 32(1):44–56.
- Papamarkos, N., Strouthopoulos, C., and Andreadis, I. (2000). Multithresholding of color and gray-level images through a neural network technique. *Image and Vision Computing*, 18:213–22.
- Paquier, W. and Ibnkahla, M. (1998). Self-organizing maps for rapidly fading nonlinear channel equalization. In *1998 IEEE International Joint Conference on Neural Networks Proceedings. IEEE World Congress on Computational Intelligence*, volume 2, pages 865–9. IEEE, New York, NY, USA.
- Paradis, R. and Dietrich, E. (1994a). Concept development in a scaffolded neural network. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2339–2343, Piscataway, NJ. IEEE Service Center.
- Paradis, R. and Dietrich, E. (1994b). Cumulative learning in a scaffolded neural network. In *Proc. WCNN'94, World Congress on Neural Networks*, volume II, pages 775–780, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Parhi, K. K., Wu, F. H., and Genesan, K. (1994). Sequential and parallel neural network vector quantizers. *IEEE Transactions on Computers*, 43(1):104–9.
- Parikh, J. A., DaPonte, J. S., DiNicola, E. G., and Pedersen, R. A. (1992). Selective detection of linear features in geological remote sensing data. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 2):963–72.

- Park, C. H. and Lee, H. S. (1997). Hybrid multiple component neural network design and learning by efficient pattern partitioning method. *Journal of the Korea Institute of Telematics and Electronics C*, 34-C(7):70–81.
- Park, C. H., Yu, J. P., Park, L.-J., and Park, S. (1996). A new neural network construction algorithm using a pool of hidden candidates. In Yamakawa, T. and Matsumoto, G., editors, *Methodologies for the Conception, Design, and Application of Intelligent Systems. Proceedings of the 4th International Conference on Soft Computing*, volume 2, pages 654–7. World Scientific, Singapore.
- Park, D. C. (2000). Centroid neural network for unsupervised competitive learning. *IEEE Transactions on Neural Networks*, 11:520–8.
- Park, D. C. and Woo, Y. J. (2001). Weighted centroid neural network for edge preserving image compression. *IEEE Transactions on Neural Networks*, 12(5):1134–1146.
- Park, G. H. and Lee, Y. J. (2000). Rate control algorithm using SOFM-based neural classifier. *Electronics Letters*, 36(12):1041–1042.
- Park, H.-G. and Oh, S.-Y. (1994). A neural network based real-time robot tracking controller using position sensitive detectors. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2754–2758, Piscataway, NJ. IEEE Service Center.
- Park, S.-T. and Bang, S.-Y. (1992). Neural networks—an introduction. *Korea Information Science Society Rev.*, 10(2):5–14. (in Korean).
- Park, Y. G., Lee, H. K., Kim, W. S., Lim, K. J., Kang, S., Ree, J., and Kim, B. (2000a). Classification of defects in solid insulation material by PD methods. In *Proceedings of the IEEE International Conference on Properties and Applications of Dielectric Materials*, volume 2, pages 749–752, Piscataway, NJ. Chungbuk Natl Univ, IEEE.
- Park, Y. G., Lee, K. W., Jang, D. U., Kang, S. H., Jeong, K. H., Kim, W. S., Lee, Y. H., and Lim, K. J. (2000b). Properties and classification of patterns of air discharges. *Transactions-of-the-Korean-Institute-of-Electrical-Engineers,-C*, 49:19–23.
- Park, Y.-M. and Kim, G.-W. (1995). Power system transient stability analysis using boundary searching algorithm. *Transactions of the Korean Institute of Electrical Engineers*, 44(5):549–57.
- Park, Y. M., Kim, G. W., Cho, H. S., and Lee, K. Y. (1997). New algorithm for Kohonen layer learning with application to power system stability analysis. *IEEE Transactions on Systems, Man, and Cybernetics. Part B: Cybernetics*, 27(6):1030–1034.
- Park, Y.-M., Kim, G.-W., and Lee, K. Y. (1995). Power system transient stability analysis using Kohonen layer. In *Stockholm Power Tech International Symposium on Electric Power Engineering*, volume 5, pages 308–13. IEEE, New York, NY, USA.
- Parkinson, A. M. and Parpia, D. Y. (1998). Intensity encoding in unsupervised neural nets. *Neural Networks*, 11:723–730.
- Parsian, H. and Misra, O. (1996). Fuzzy class learning vector quantizer in image compression. In Cameron, G., Hassoun, M., Jerdee, A., and Melvin, C., editors, *Proceedings of the 39th Midwest Symposium on Circuits and Systems*, volume 2, pages 579–82. IEEE, New York, NY, USA.
- Partsinevelos, P., Stefanidis, A., and Agouris, P. (2001). Automated spatiotemporal scaling for video generalization. In *IEEE International Conference on Image Processing*, volume 1, pages 177–180. Dept. of Spatial Information Eng., Natl. Ctr. Geogr. Info. and Analysis, University of Maine.
- Parui, S. K., Datta, A., and Pal, T. (1995). Shape approximation of arc patterns using dynamic neural networks. *Signal Processing*, 42(2):221–5.

- Pascual, A., Barcena, M., Merelo, J. J., and Carazo, J. M. (1999). Application of the fuzzy Kohonen clustering network to biological macromolecules images classification. In *Engineering Applications of Bio-Inspired Artificial Neural Networks. International Work-Conference on Artificial and Natural Neural Networks, IWANN'99. Proceedings, (Lecture Notes in Computer Science Vol.1607)*, volume 2, pages 331–40, Berlin, Germany. Springer-Verlag.
- Pascual, A., Barcena, M., Merelo, J. J., and Carazo, J.-M. (2000a). Mapping and fuzzy classification of macromolecular images using self-organizing neural networks. *Ultramicroscopy*, 84(1):85–99.
- Pascual, A., Barcena, M., Merelo, J. J., and Carazo, J. M. (2000b). Self-organizing networks for mapping and clustering biological macromolecules images. In Malmgren, H., Boga, M., and Niklasson, L., editors, *Artificial Neural Networks in Medicine and Biology, Prodeedings of the ANNIMAB-1 COnference, Göteborg, Sweden, 13–16 May 2000*, pages 283–288.
- Pascual-Marqui, R. D., Pascual-Montano, A. D., Kochi, K., and M., C. J. (2001). Smoothly distributed fuzzy c-means: A new self-organizing map. *Pattern Recognition*, 34(12):2395–2402.
- Pasian, F., Smareglia, R., Hantzios, P., Dapergolas, A., and Bellas-Velidis, I. (1997). Automated objective prism spectral classification using neural networks. *Astrophysics and Space Science Library*, 212:103–8. (Wide-Field Spectroscopy. 2nd Conference of the Working Group of IAU Commission 9 on ‘Wide-Field Imaging’ Conf. Date: 20–25 May 1996 Conf. Loc: Athens, Greece).
- Patel, D., Hannah, I., and Davies, E. R. (1994). Foreign object detection using a unsupervised neural network. In *Proc. WCNN'94, World Congress on Neural Networks*, volume I, pages 631–635, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Patel, S., Mahers, E., and Ashton, M. (1993). Measuring the size distribution of emulsion droplets in an image using kohonen’s self-organising feature map. In Taylor, M. and Lisboa, P., editors, *Techniques and Applications of Neural Networks*, pages 219–33, Hemel Hempstead, UK. Unilever Res. Lab. , Port Sunlight, UK, Ellis Horwood.
- Patrick, R. (2000). Curve forecast with the SOM algorithm: using a tool to follow the time on a kohonen map. In *8th European Symposium on Artificial Neural Networks. ESANN"2000. Proceedings. D-Facto, Brussels, Belgium*, pages 353–8.
- Pattichis, C. S., Christodoulou, C. I., Pattichis, M., Pantziaris, M., and Nicolaides, A. (2001). An integrated system for the assessment of ultrasonic imaging atherosclerotic carotid plaques. In *IEEE International Conference on Image Processing*, volume 1, pages 325–328. Department of Computer Science, University of Cyprus.
- Pattichis, C. S., Schizas, C. N., and Middleton, L. T. (1995). Neural network models in EMG diagnosis. *IEEE Transactions on Biomedical Engineering*, 42(5):486–96.
- Pattichis, C. S., Schizas, C. N., Sergiou, A., and Schnorrenberg, F. (1994). A hybrid neural network electromyographic system: incorporating the WISARD net. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 6, pages 3478–83, New York, NY, USA. Dept. of Comput. Sci. , Cyprus Univ. , Nicosia, Cyprus, IEEE.
- Patton, R., Webb, M., and Gaj, R. (2001). Covert operations detection for maritime applications. *Canadian Journal of Remote Sensing*, 27(4):306–319.
- Pavlides, G., Papadimitriou, S., Mavroudi, S., Vladutu, L., and Bezerianos, A. (2002). The supervised network self-organizing map for classification of large data sets. *Applied Intelligence*, 16(3):185–203.
- Pedotti, A., Ferrigno, G., and Redolfi, M. (1994). Neural network in multimedia speech recognition. In Ifeachor, E. C. and Rosen, K. G., editors, *Proceedings of the International Conference on Neural Networks and Expert Systems in Medicine and Healthcare*, pages 167–73, Plymouth, UK. Centro di Bioingegneria, Politecnico di Milano, Italy, Univ. Plymouth.

- Pedrazzi, P. (1994). On self-organizing neural character recognizers. In Caianiello, E. R., editor, *Neural Nets Wirk Vietri 93—Proceedings of the 5th Italian Workshop on Neural Nets*, Singapore. Elsag Bailey, Genova, Italy, World Scientific.
- Pedrycz, W. and Card, H. C. (1992). Linguistic interpretation of self-organizing maps. In *IEEE International Conference on Fuzzy Systems*, pages 371–378, Piscataway, NJ. IEEE, IEEE Service Center.
- Pedrycz, W., Succi, G., Reformat, M., Musilek, P., and Bai, X. (2001). Self organizing maps as a tool for software analysis. In *Canadian Conference on Electrical and Computer Engineering*, volume 1, pages 93–98. Dept. of Elec. and Computer Eng., University of Alberta.
- Pedrycz, W. and Waletzky, J. (1997a). Fuzzy clustering in software reusability. *Software—Practice and Experience*, 27(3):245–270.
- Pedrycz, W. and Waletzky, J. (1997b). Neural-network front ends in unsupervised learning. *IEEE Transactions on Neural Networks*, 8(2):390–401.
- Pei, S.-C. and Lo, Y.-S. (1998). Color image compression and limited display using self- organization Kohonen map. *IEEE Transactions on Circuits and Systems for Video Technology*, 8(2):191–205.
- Peiris, V., Hochet, B., Abdo, S., and Declercq, M. (1991). Implementation of a Kohonen map with learning capabilities. In *Int. Symp. on Circuits and Systems*, volume III, pages 1501–1504, Piscataway, NJ. IEEE, IEEE Service Center.
- Peiris, V., Hochet, B., Corbaz, G., Declercq, M., and Piguet, S. (1989). A versatile numerical circuit for the simulation of neural networks. In *Proc. Journees d'Electronique 1989. Artificial Neural Networks*, pages 313–322, Lausanne, Switzerland. Presses Polytechniques Romandes. (in French).
- Peiris, V., Hochet, B., Creasy, T., and Declercq, M. (1992). Implementation of a Kohonen network with learning faculties. *Bull. des Schweizerischen Elektrotechnischen Vereins & des Verbandes Schweizerischer Elektrizitaetswerke*, 83(5):41–43. (in English).
- Peiris, V., Hochet, B., and Declercq, M. (1994). Implementation of a fully parallel Kohonen map: A mixed analog digital approach. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2064–2069, Piscataway, NJ. IEEE Service Center.
- Pelikan, E., Matejka, P., Slama, M., and Vinkler, K. (1996). Interactive forecasting of the electric load using Kohonen self-organizing feature maps. In *WCNN'96. World Congress on Neural Networks. International Neural Network Society 1996 Annual Meeting*, pages 443–6. Lawrence Erlbaum Associates, Mahwah, NJ, USA.
- Peltoranta, M. (1992). *Methods for classification of non-averaged EEG responses using autoregressive model based features*. PhD thesis, Graz University of Technology, Graz, Austria.
- Peltoranta, M. and Pfurtscheller, G. (1994). Neural network based classification of non-averaged event related-eeg responses. *Medical & Biological Engineering & Computing*, 32(2):189–196.
- Pendock, N. (1994). Signal segmentation using self-organizing maps. In *Proceedings of the 1993 IEEE South African Symposium on Communications and Signal Processing*, pages 218–23, New York, NY, USA. Dept. of Comput. & Appl. Math. , Univ. of the Witwatersrand, Johannesburg, South Africa, IEEE.
- Peng, M., Nikias, C. L., and Proakis, J. G. (1991). Adaptive equalization for PAM and QAM signals with neural networks. In *Conf. Record of the Twenty-Fifth Asilomar Conf. on Signals, Systems and Computers*, volume I, pages 496–500, Los Alamitos, CA. IEEE; Naval Postgraduate School; San Jose State Univ, IEEE Computer Society Press.
- peng, W., guangmin, S., and xinming, Z. (2001). Handwritten character recognition based on hybrid neural networks. In *Proceedings-of-the-SPIE –The-International-Society-for-Optical-Engineering. vol.4555*, volume 4555, pages 65–70.

- Penman, J. and Yin, C. M. (1994). Feasibility of using unsupervised learning, artificial neural networks for the condition monitoring of electrical machines. *IEE Proceedings-Electric Power Applications*, 141(6):317–22.
- Peper, F., Shirazi, M. N., and Noda, H. (1993a). A noise suppressing distance measure for competitive learning neural networks. *IEEE Trans. on Neural Networks*, 4:151–153.
- Peper, F., Zhang, B., and Noda, H. (1993b). A comparative study of ART-2 and the self-organizing feature map. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1425–1429, Piscataway, NJ. JNNS, IEEE Service Center.
- Perez, C. A., Held, C. M., and Mollinger, P. R. (1999). Handwritten digit recognition based on prototypes created by euclidean distance. In *Proceedings 1999 International Conference on Information Intelligence and Systems*, pages 320–3, Los Alamitos, CA, USA. IEEE Computer Society Press.
- Perez, C. A., Salinas, C. A., and Estevez, P. (2001). Designing biologically inspired receptive fields for neural pattern recognition technology. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 1, pages 58–63. Department of Electrical Engineering, Universidad de Chile.
- Perez, J.-C. and Vidal, E. (1993). Constructive design of LVQ and DSM classifiers. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation, Lecture Notes in Computer Science No. 686*, pages 335–339. Springer.
- Perez, M. J., Luque, W. M., and Damiani, F. (1995). Design of a 4\*4 Kohonen neural net-vhdl description. In *Proceedings of the 1995 First IEEE International Caracas Conference on Devices, Circuits and Systems*, pages 135–8. IEEE, New York, NY, USA.
- Perlmutter, K. O., Nash, C. L., and Gray, R. M. (1994). A comparison of Bayes risk weighted vector quantization with posterior estimation with other VQ-based classifiers. In *Proceedings ICIP-94*, volume 2, pages 217–21, Los Alamitos, CA, USA. Dept. of Electr. Eng. , Stanford Univ. , CA, USA, IEEE Computer Society Press.
- Perlmutter, K. O., Perlmutter, S. M., Gray, R. M., Olshen, R. A., and Oehler, K. L. (1996). Bayes risk weighted vector quantization with posterior estimation for image compression and classification. *IEEE Trans. on Image Processing*, 5(2):347–360.
- Perrone, A. L. and Basti, G. (1994). Computation and reversibility in a chaotic system modelled by a Turing machine. an application to contextual pattern recognition. In *Proc. 3rd International Conference on Fuzzy Logic, Neural Nets and Soft Computing*, pages 501–504, Iizuka, Japan. Fuzzy Logic Systems Institute.
- Perus, M. (2001). Multi-level synergetic computation in the brain. *Nonlinear-Phenomena-in-Complex-Systems*, 4:157–93.
- Pesonnen, E., Eskelinen, M., and Juhola, M. (1996). Comparison of different neural network algorithms in the diagnosis of acute appendicitis. *International Journal of Bio-Medical Computing*, 40(3):227–33.
- Pesonnen, E., Ohmann, C., Eskelinen, M., and Juhola, M. (1998). Diagnosis of acute appendicitis in 2 databases evaluation of different neighborhoods with an LVQ neural network. *Methods Inform. Med.*, 37:59–63.
- Pessa, E. and Penna, M. P. (1996). Can learning process in neural networks be considered as a phase transition? In Marinaro, M. and Tagliaferri, R., editors, *Proceedings of the 7th Italian Workshop on Neural Nets. Neural Nets. WIRN Vietri-95*, pages 123–9. World Scientific, Singapore.
- Pessi, T., Kangas, J., and Simula, O. (1995). Patient grouping using self-organizing map. In *Proc. International Conference on Artificial Neural Networks (ICANN'95), Industrial Session 5 (Medicine)*.

- Pesu, L., Ademovic, E., Pesquet, J. C., and Helisto, P. (1996). Wavelet packet based respiratory sound classification. In *Proceedings of the IEEE-SP International Symposium on Time-Frequency and Time-Scale Analysis*, pages 377–80. IEEE, New York, NY, USA.
- Petersohn, H. (1998). Assessment of cluster analysis and self-organizing maps. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, 6(2):139–49.
- Petrescu, A. and Tomescu, N. (1998). Kohonen neural nets in colours reduction of images. *Elecrotehnica, Electronica si Automatica*, 46(5–6):22–4.
- Petroni, N. C. and Tricarico, M. (1997). Self-organizing neural nets and the perceptual origin of the circle of fifths. In Leman, M., editor, *Music, Gestalt, and Computing. Studies in Cognitive and Systematic Musicology*, pages 169–80. Springer-Verlag, Berlin, Germany.
- Peura, M. (1998). The self-organizing map of trees. *Neural Processing Letters*, 8(2):155–162.
- Peura, M. (1999a). Attribute trees in image analysis—heuristic matching and learning techniques. In *Proc. of International Conference on Image Analysis and Processing (ICIAP'99), Venice, Italy, September 27–29*, pages 1160–1165.
- Peura, M. (1999b). Self-organizing map of attribute trees. In *ICANN99. Ninth International Conference on Artificial Neural Networks (IEE Conf. Publ. No.470)*, volume 1, pages 168–173, London, UK. IEE.
- Peura, M. (2001). Attribute trees as adaptive object models in image analysis. *Acta-Polytechnica-Scandinavica,-Mathematics-and-Computing-Series. no.Ma113; 2001; p.1–80*, pages 1–80.
- Pfurtscheller, G., Flotzinger, D., and Matuschik, K. (1992a). Sleep classification in infants based on artificial neural networks. *Biomedizinische Technik*, 37(6):122–130. (in German).
- Pfurtscheller, G., Flotzinger, D., Mohl, W., and Peltoranta, M. (1992b). Prediction of the side of hand movements from single-trial multi-channel EEG data using neural networks. *Electroencephalography and Clinical Neurophysiology*, 82(4):313–315.
- Pfurtscheller, G., Kalcher, J., Neuper, C., Flotzinger, D., and Pregenzer, M. (1996). On-line EEG classification during externally-paced hand movements using a neural network-based classifier. *Electroencephalography and Clinical Neurophysiology*, 99(5):416–25.
- Pfurtscheller, G. and Klimesch, W. (1992). Functional topography during a visuoverbal judgment task studied with event-related desynchronization mapping. *J. Clin. Neurophysiol.*, 9(1):120–131.
- Pfurtscheller, G. and Pregenzer, M. (1999). LVQ and single trial eeg classification. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 317–328. Elsevier, Amsterdam.
- Phaf, R. H., Den Dulk, P., Tijsseling, A., and Lebert, E. (2001). Novelty-dependent learning and topological mapping. *CONNECTION SCIENCE*, 13(4):293–321.
- Pham, D. T. and Awad, H. A. (2000). Function approximation using fuzzy Kohonen networks. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. Intelligent Systems Laboratory, Systems Division, School of Engineering, University of Wales Cardiff, ICSC Academic Press.
- Pham, D. T. and Bayro-Corrochano, E. J. (1994). Self-organizing neural-network-based pattern clustering method with fuzzy outputs. *Pattern Recognition*, 27(8):1103–10.
- Pham, D. T. and Chan, A. B. (1998). A novel firing rule for training Kohonen self-organising maps. In *Thirteenth International Conference on Applications of Artificial Intelligence in Engineering AIENG XIII*, pages 101–4, Southampton, UK. Computational Mechanics Publications.
- Pham, D. T. and Sagiroglu, S. (2000). Neural network classification of defects in veneer boards. In *Proceedings of the Institution of Mechanical Engineers, Part B (Journal of Engineering Manufacture)*, volume 214, pages 255–8.

- Pican, N. (1997). Contextual Kohonen SOM with orthogonal weight estimator principle. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 667–72. Springer-Verlag, Berlin, Germany.
- Pico, F. I., Munoz, D. A., Leon, A. A., and Garcia-Chamizo, J. M. (1995). Segmentation of defect in textile fabric using semi-cover vector and self-organization. In *QCAV 95. 1995 International Conference on Quality Control by Artificial Vision*, pages 58–65. Univ. Bourgogne, Le Creusot, France.
- Picton, P. D. (1991). The relationship between Kohonen learning and Kalman filters. In *IEE Colloquium on 'Adaptive Filtering, Non-Linear Dynamics and Neural Networks' (Digest No. 176)*, pages 7/1–5, London, UK. IEE.
- Piepenbrock, C. and Obermayer, K. (1999). Effects of lateral competition in the primary visual cortex on the development of topographic projections and ocular dominance maps. *Neurocomputing*, 26:477–82.
- Piepenbrock, C. and Obermayer, K. (2000). The effect of intracortical competition on the formation of topographic maps in models of Hebbian learning. *Biological Cybernetics*, 82:345–53.
- Pilla V., J. and Lopes, H. S. (2000). Detection of movement-related desynchronization of the EEG using neural networks. In Enderle, J., editor, *Annual International Conference of the IEEE Engineering in Medicine and Biology—Proceedings*, volume 2, pages 1372–1376. Department of Electronics, CEFET-PR.
- Pilot, T. and Knosala, R. (1996). The neural network application in the group technology. In Stelson, K. and Oba, F., editors, *III Konferencja Naukowa Komputerowe Wspomaganie Prac Inżynierskich (III Conference on Computer Aided Engineering Practice)*, pages 443–54. ASME, New York, NY, USA.
- Pino, B., Pelayo, F. J., and Prieto, A. (1994). A digital implementation of self-organizing maps. In *Proceedings of the Fourth International Conference on Microelectronics for Neural Networks and Fuzzy Systems*, pages 260–7, Los Alamitos, CA, USA. Dept. de Electron. y Tecnologia de Computadores, Granada Univ. , Spain, IEEE Computer Society Press.
- Pintore, M., Tabouret, O., Ros, F., and Chretien, J. R. (2001). Database mining applied to central nervous system (CNS) activity. *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*, 36(4):349–359.
- Piras, A. and Germond, A. (1997). Local linear correlation analysis with the SOM. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 203–208. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Piras, A. and Germond, A. (1998). Local linear correlation analysis with the som. *Neurocomputing*, 21(1):79–90.
- Pitas, I., Kotropoulos, C., Nikolaidis, N., and Bors, A. G. (1997). Robust and adaptive techniques in self organizing neural networks. *Nonlinear Analysis, Theory, Methods & Applications*, 30:4517–4528.
- Pitas, I., Kotropoulos, C., Nikolaidis, N., Yang, R., and Gabbouj, M. (1996). Order statistics learning vector quantizer. *IEEE Transactions on Image Processing*, 5(6):1048–1053.
- Platero, C., Fernandez, C., Campoy, P., and Aracil, R. (1996). Surface analysis of cast aluminum by means of artificial vision and AI based techniques. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2665:36–46. (Machine Vision Applications in Industrial Inspection IV Conf. Date: 31 Jan. -1 Feb. 1996 Conf. Loc: San Jose, CA, USA Conf. Sponsor: SPIE; Soc. Imaging Sci. & Technol).
- Platt, J. C. and Barr, A. H. (1987). Constrained differential optimization. In Anderson, D. Z., editor, *Neural Information Processing Systems*, pages 612–621. American Inst. of Physics, New York, NY.

- Plebe, A. and Anile, A. M. (2002). A neural-network-based approach to the double traveling salesman problem. *NEURAL COMPUTATION*, 14(2):437–471.
- Pleshko, V. V., Ermakov, A. E., and Lipinskii, G. V. (2001). TopSOM: visualisation of document collections by means of self-organising maps of topics. *Informatsionnye-Tekhnologii. no.8; 2001; p.8–11*, pages 8–11.
- Plesinger, A., Ruzek, B., and Bouskova, A. (2000). Statistical interpretation of WEBNET seismograms by artificial neural nets. *STUDIA GEOPHYSICA ET GEODAETICA*, 44(2):251–271.
- Pletnev, I. V. and Zernov, V. V. (2002). Classification of metal ions according to their complexing properties: a data-driven approach. *ANALYTICA CHIMICA ACTA*, 455(1):131–142.
- Plummer, J. (1993). Tighter process control with neural networks. *AI Expert*, 8(10):49–55.
- Podgornik, P. and Dobnikar, A. (1996). Modified art for character recognition. In *Solving Engineering Problems with Neural Networks. Proceedings of the International Conference on Engineering Applications of Neural Networks (EANN'96)*. Syst. Eng. Assoc, Turku, Finland, volume 1, pages 289–92.
- Poechmueller, W., Glesner, M., and Juergs, H. (1993). Is LVQ really good for classification?—an interesting alternative. In *Proc. ICNN'93, International Conference on Neural Networks*, volume III, pages 1207–1212, Piscataway, NJ. IEEE, IEEE Service Center.
- Poggi, G. (1995). Applications of the Kohonen algorithm in vector quantization. *European Transactions on Telecommunications and Related Technologies*, 6(2):191–202.
- Poggi, G. (1996). Generalized-cost-measure-base address-predictive vector quantization. *IEEE Trans. on Image Processing*, 5(1):49–55.
- Poggi, G. and Sasso, E. (1993). Codebook ordering techniques for address-predictive VQ. In *Proc. ICASSP-93, International Conference on Acoustics, Speech and Signal Processing*, volume V, pages 586–589, Piscataway, NJ. IEEE Service Center.
- Poinçot, P., Lesteven, S., and Murtagh, F. (1997). A spatial user interface to the astronomical literature. *Astronomy and Astrophysics*. Accepted for publication.
- Poirier, F. (1991a). DVQ : dynamic vector quantization application to speech processing. In *Proc. EUROSPEECH-91, 2nd European Conf. on Speech Communication and Technology*, volume II, pages 1003–1006, Genova, Italy. Assoc. Belge Acoust. ; Assoc. Italiana di Acustica; CEC; et al, Istituto Int. Comunicazioni.
- Poirier, F. (1991b). Improving the training and testing speed and the ability of generalization in learning vector quantization-DVQ. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 649–652, Piscataway, NJ. IEEE, IEEE Service Center.
- Poirier, F. and Ferrieux, A. (1991). DVQ: dynamic vector quantization-an incremental LVQ. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1333–1336, Amsterdam, Netherlands. North-Holland.
- Pok, G. and Liu, J. C. (1998). Texture classification by a two-level hybrid scheme. In *Proceedings of the SPIE—The International Society for Optical Engineering*, volume 3656, pages 614–22.
- Pok, G. and Liu, J. C. (1999). Unsupervised texture segmentation based on histogram of encoded Gabor features and MRF model. *IEEE International Conference on Image Processing*, 3:208–211.
- Polanco, X., Francois, C., and Lamirel, J. C. (2001). Using artificial neural networks for mapping of science and technology: A multi-self-organizing-maps approach. *SCIENTOMETRICS*, 51(1):267–292.

- Polani, D. (1997). Fitness functions for the optimization of Self-Organizing maps. In Bäck, T., editor, *Proceedings of the Seventh International Conference on Genetic Algorithms*, pages 776–783. Morgan Kaufmann.
- Polani, D. (1999). On the optimization of self-organizing maps by genetic algorithms. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 157–170. Elsevier, Amsterdam.
- Polani, D. (2002). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Measures for the Organization of Self-Organizing Maps, pages 13–44. Physica-Verlag Heidelberg.
- Polani, D. and Gutenberg, J. (1997). Organization measures for self-organizing maps. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 280–285. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Polani, D. and Uthmann, T. (1992). Adaptation of Kohonen feature map topologies by genetic algorithms. In Männer, R. and Manderick, B., editors, *Parallel Problem Solving from Nature, 2*, pages 421–429. Elsevier Science Publishers B.V.
- Polani, D. and Uthmann, T. (1993). Training Kohonen feature maps in different topologies: an analysis using genetic algorithms. In Forrest, S., editor, *Proceedings of the Fifth International Conference on Genetic Algorithms*, pages 326–33, San Mateo, CA, USA. Inst. fur Inf. , Johannes Gutenberg-Univ. , Mainz, Germany, Morgan Kaufmann.
- Polanski, J. (1996). Neural nets for the simulation of molecular recognition within MS-Windows environment. *Journal of Chemical Information and Computer Sciences*, 36(4):694–705.
- Polanski, J. (1997). The receptor-like neural network for modeling corticosteroid and testosterone binding globulins. *Journal of Chemical Information and Computer Sciences*, 37(3):553–61.
- Polanski, J., Ratajczak, A., Gasteiger, J., Galdecki, Z., and Galdecka, E. (1997). Molecular modeling and x-ray analysis for a structure- taste study of alpha -arylsulfonylalkanoic acids. *Journal of Molecular Structure*, 407(1):71–80.
- Polanski, J. and Walczak, B. (2000). Comparative molecular surface analysis (COMSA): A novel tool for molecular design. *Computers and Chemistry*, 24(5):615–625.
- Polishchuk, V. and Kanevski, M. (2000). Comparison of unsupervised and supervised training of RBF neural networks. Case study: Mapping of contamination data. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. Institute of Nuclear Safety, ICSC Academic Press.
- Polze, A. and Malek, M. (1995). Parallel computing in a world of workstations. In Hamza, M. H., editor, *Proceedings of the Seventh IASTED/ISMM International Conference Parallel and Distributed Computing and Systems*, pages 72–4. IASTED-ACTA Press, Anaheim, CA, USA.
- Pomierski, T., Gross, H. M., and Wendt, D. (1993). A distributed multicolumnar system for primary cortical analysis of real-world scenes. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 142–147, London, UK. Springer.
- Pomplun, M., Velichkovsky, B., and Ritter, H. (1994). An artificial neural network for high precision eye movement tracking. In Nebel, B. and Dreschner-Fischer, L., editors, *KI-94: Advances in Artificial Intelligence. 18th German Annual Conference on Artificial Intelligence. Proceedings*, pages 63–9, Berlin, Germany. Dept. of Inf. Sci. , Bielefeld Univ. , Germany, Springer-Verlag.
- Ponthieux, S. and Cottrell, M. (2001a). Living conditions: classification of households using the kohonen algorithm. *European-Journal-of-Economic-and-Social-Systems*, 15:69–84.

- Ponthieux, S. and Cottrell, M. (2001b). Neural classification and "traditional" data analysis: an application to households' living conditions. In *Bio-Inspired Applications of Connectionism. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part II. (Lecture Notes in Computer Science Vol.2085)*. Springer-Verlag, Berlin, Germany, pages 738–45.
- Pope, C., Atlas, L., and Nelson, C. (1989). A comparison between neural network and conventional vector quantization codebook algorithms. In *Proc. IEEE Pacific Rim Conf. on Communications, Computers and Signal Processing.*, pages 521–524, Piscataway, NJ. IEEE; Univ. Victoria, IEEE Service Center.
- Porrmann, M., Ruping, S., and Ruckert, U. (1999). Som hardware with acceleration module for graphical representation of the learning process. In *Proceedings of the Seventh International Conference on Microelectronics for Neural, Fuzzy and Bio-Inspired Systems*, pages 380–6, Los Alamitos, CA, USA. IEEE Computer Society.
- Portin, K. (1998). *Analysis of neuromagnetic oscillatory cortical activity and visual evoked responses*. PhD thesis, Helsinki University of Technology, Espoo, Finland.
- Portin, K., Kajola, M., and Salmelin, R. (1996). Neural net identification of thumb movement using spectral characteristics of magnetic cortical rhythms. *Electroencephalography and Clinical Neurophysiology*, 98(4):273–80.
- Portin, K., Salmelin, R., and Kaski, S. (1993). Analysis of magnetoencephalographic data with self-organizing maps. In Kuusela, T., editor, *Proc. XXVII Annual Conf. of the Finnish Physical Society, Turku, Finland*, page 15. 2, Helsinki, Finland. Finnish Physical Society.
- Portugali, J. (1997). Self-organization, cities, cognitive maps and information systems. In Hirtele, S. C. and Frank, A. U., editors, *Spatial Information Theory, A Theoretical Basis for GIS. International Conference COSIT '97 Proceedings*, pages 329–46. Springer-Verlag, Berlin, Germany.
- Postula, A., Hemani, A., and Hungenahally, S. (1993). Self organisation based scheduling and binding algorithm for high level synthesis of digital circuits. *Australian Computer Science Communications*, 15(1,):pt. A.
- Potlapalli, H. and Luo, R. C. (1996). Projection learning for self-organizing neural networks. *IEEE Transactions on Industrial Electronics*, 43(4):485–91.
- Potvin, J. Y. (1993). The traveling salesman problem: a neural network perspective. *ORSA Journal on Computing*, 5(4):328–48.
- Poulos, M., Rangoussi, M., and Alexandris, N. (1999). Neural network based person identification using EEG features. In *1999 IEEE International Conference on Acoustics, Speech, and Signal Processing. Proceedings. ICASSP99*, volume 2, pages 1117–20, Piscataway, NJ. IEEE Service Center.
- Poulton, M. M., Sternberg, B. K., and Glass, C. E. (1992). Location of subsurface targets in geophysical data using neural networks. *Geophysics*, 57(12):1534–44.
- Pradhan, N., Sadasivan, P. K., and Arunodaya, G. R. (1996). Detection of seizure activity in EEG by an artificial neural network: a preliminary study. *Computers and Biomedical Research*, 29(4):303–13.
- Pregenzer, M. (1997). *Distinction Sensitive Learning Vector Quantization (DS LVQ)*. PhD thesis, Graz University of Technology, Graz.
- Pregenzer, M., Flotzinger, D., and Pfurtscheller, G. (1994a). Distinction sensitive learning vector quantization—a new noise-insensitive classification method. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2890–2894, Piscataway, NJ. IEEE Service Center.

- Pregenzer, M., Flotzinger, D., and Pfurtscheller, G. (1994b). Distinction sensitive Learning Vector Quantization for automated feature selection. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1075–1078, London, UK. Springer.
- Pregenzer, M. and Pfurtscheller, G. (1995). Distinction sensitive learning vector quantization (DS LVQ ) application as a classifier based feature selection method for a brain computer interface. In *Fourth International Conference on ‘Artificial Neural Networks’*, pages 433–6. IEE, London, UK.
- Pregenzer, M. and Pfurtscheller, G. (1999). Frequency component selection for an EEG-based brain computer interface (BCI). *IEEE Transactions on Rehabilitation Engineering*, 7(3).
- Pregenzer, M., Pfurtscheller, G., and Andrew, C. (1995). Improvement of EEG classification with a subject specific feature selection. In Verleysen, M., editor, *Proc. ESANN'95, European Symp. on Artificial Neural Networks*, pages 247–252, Brussels, Belgium. D facto conference services.
- Pregenzer, M., Pfurtscheller, G., and Flotzinger, D. (1994c). Selection of electrode positions for an EEG-based brain computer interface (BCI) super(1)). *Biomedizinische Technik*, 39(10):264–269.
- Pregenzer, M., Pfurtscheller, G., and Flotzinger, D. (1996). Automated feature selection with a distinction sensitive learning vector quantizer. *Neurocomputing*, 11(1):19–29.
- Prem, E. (1995). Dynamic symbol grounding, state construction and the problem of teleology. In Mira, J. and Sandoval, F., editors, *From Natural to Artificial Neural Computation. International Workshop on Artificial Neural Networks. Proceedings*, pages 619–26. Springer-Verlag, Berlin, Germany.
- Presedo, J., Fernandez, E. A., Vila, J., and Barro, S. (1996). Cycles of ECG parameter evolution during ischemic episodes. In Murray, A. and Arzbaecher, R., editors, *Computers in Cardiology 1996*, pages 489–92. IEEE, New York, NY, USA.
- Priddy, K. L., Keller, P. E., and Angeline, P. J., editors (2001). *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4390.
- Prigent, C., Aires, F., Rossow, W., and Matthews, E. (2001). Joint characterization of vegetation by satellite observations from visible to microwave wavelengths: A sensitivity analysis. *Journal-of-Geophysical-Research*, 106:20665–85.
- Principe, J. C. and Wang, L. (1995). Non-linear time series modeling with Self-Organization Feature Maps. In *Proc. NNNSP'95, IEEE Workshop on Neural Networks for Signal Processing*, pages 11–20, Piscataway, NJ. IEEE Service Center.
- Principe, J. C., Wang, L., and Motter, M. A. (1998). Local dynamic modeling with self-organizing maps and applications to nonlinear system identification and control. *Proceedings of the IEEE*, 86(11):2240–58.
- Privitera, C. M. and Morasso, P. (1993). A new approach to storing temporal sequences. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2745–2748, Piscataway, NJ. JNNS, IEEE Service Center.
- Privitera, C. M. and Morasso, P. (1994a). The analysis of continuous temporal sequences by a map of sequential leaky integrators. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 5, pages 3127–30, New York, NY, USA. IEEE.
- Privitera, C. M. and Morasso, P. (1994b). A neural model for the execution of symbolic motor programs. In Marinaro, M. and Morasso, P., editors, *International Conference on Artificial Neural Networks*, pages 254–257. Springer-Verlag, London,.

- Privitera, C. M. and Plamondon, R. (1995). A self-organizing neural network for learning and generating sequences of target-directed movements in the context of a delta-lognormal synergy. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume IV, pages 1999–2004, Piscataway, NJ. IEEE Service Center.
- Proriol, J. (1993). *MLP-RBF. A cooperative multi-modular neural network application in high-energy physics.*
- Puechmorel, S. and Gaubet, E. (1995). Time-frequency feature maps. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 532–535. INNS.
- Puechmorel, S. and Ibnkahla, M. (1996). Manifold Kohonen maps. In *WCNN'96. World Congress on Neural Networks. International Neural Network Society 1996 Annual Meeting*, pages 995–8. Lawrence Erlbaum Associates, Mahwah, NJ, USA.
- Pulakka, K. and Kujanpa, V. (1998). Rough level path planning method for a robot using SOFM neural network. *Robotica*, 16(pt.4):415–23.
- Pulice, W. M. (1994). Naming the unmeasurable using a neural-fuzzy approach. In *World Congress on Neural Networks-San Diego. 1994 International Neural Network Society Annual Meeting*, volume 1, pages I/853–6, Hillsdale, NJ, USA. Lawrence Erlbaum Associates.
- Pulkki, V. (1994). Eräättä itseorganisoivan kartan digitaalisia toteutuksia SOM digital implementations of the self-organizing map). Master's thesis, Helsinki University of Technology, Espoo, Finland. (in finnish).
- Pulkki, V. (1995). Data averaging inside categories with the self-organizing map. Report A27, Helsinki Univ. of Technology, Laboratory of Computer and Information Science, Espoo, Finland.
- Pulkki, V. and Harju, T. (1996). An implementation of the self-organizing map on the CNAPS neurocomputer. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 2, pages 1345–9. IEEE, New York, NY, USA.
- Pullwitt, R. and Der, R. (2001). Integrating contextual information into text document clustering with self-organising maps. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 54–60. Springer.
- Purucker, M. C. (1996). Neural network quarterbacking. *IEEE Potentials*, 15(3):9–15.
- Purwins, H., Blankertz, B., and Obermayer, K. (2000). New method for tracking modulations in tonal music in audio data format. In *Proceedings of the International Joint Conference on Neural Networks*, volume 6, pages 270–275, Piscataway, NJ. CCRMA, IEEE.
- Qiao, X. B., Jiang, B., Hou, T. J., and Xu, X. J. (2001). Representation of molecular electrostatic potentials of biopolymer by self-organizing feature map. *CHINESE JOURNAL OF CHEMISTRY*, 19(12):1172–1178.
- Qiao, X. J., Bin, L. Q., and Beng, Z. Y. (2000). Automatic classification of stellar spectra using SOFM method. *Acta-Astrophysica-Sinica*, 20:437–50.
- Qiong, L., Ray, S., Levinson, S., Huang, T., and Huang, J. (1999). Temporal sequence learning and recognition with dynamic som. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 5, pages 2970–5, Piscataway, NJ. IEEE Service Center.
- Qiu, G. and Booth, A. W. (1996). Frequency sensitive Hebbian learning. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 1, pages 143–8. IEEE, New York, NY, USA.
- Qixiu, H. and Yue, P. (1997). Neural net approach for speaker sensitive measure analysis. In Domanski, M. and Stasinski, R., editors, *1997 IEEE 6th International Conference on Emerging Technologies and Factory Automation Proceedings*, pages 365–8. Poznan Univ. Technol, Poznan, Poland.

- Qizhi, T., Xiaohai, H., li, J., Zhouyu, D., Xiaoqiang, W., and Deyuan, T. (2000). Color image segmentation algorithm based on neural networks. In *Proceedings-of-the-SPIE –The-International-Society-for-Optical-Engineering*. vol.4224, volume 4224, pages 109–13.
- Quek, C., Wahab, A., and Aarit, S. (2000). POP-yager: A novel self-organizing fuzzy neural network based on the yager inference. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4120, pages 14–25, Bellingham, WA. Nanyang Technological Univ, Society of Photo-Optical Instrumentation Engineers.
- Quittek, J. W. (1995). Optimizing parallel program execution by self-organizing maps. *Journal of Artificial Neural Networks*, 2(4):365–80.
- Raekelboom, S. and van Hulle, M. M. (1998). The Softmap algorithm. *Neural Processing Letters*, 8:181–192.
- Raffo, L., Caviglia, D. D., and Bisio, G. M. (1992). Neural clustering algorithms for classification and pre-placement of VLSI cells. In *Proc. COMPEURO'92, The Hague, Netherlands, May 4–8*, pages 556–561, Piscataway, NJ. IEEE Service Center.
- Raghu, P. P., Poongodi, R., and Yegnanarayana, B. (1993). Texture classification using a two-stage neural network approach. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2195–2198, Piscataway, NJ. JNNS, IEEE Service Center.
- Raghu, P. P., Poongodi, R., and Yegnanarayana, B. (1994). Texture classification using a combined self-organizing map and multilayer perceptron. In Balakrishnan, N., Radhakrishnan, T., Sampath, D., and Sundaram, S., editors, *Computer Systems and Education. Proceedings of the International Conference on Computer Systems and Education in Honour of Prof. V. Rajaraman*, pages 145–53, New Delhi, India. Dept. of Comput. Sci. & Eng. , Indian Inst. of Technol. , Madras, India, Tata McGraw-Hill.
- Raghu, P. P., Poongodi, R., and Yegnanarayana, B. (1995). A combined neural network approach for texture classification. *Neural Networks*, 8(6):975–87.
- Raghu, P. P. and Yegnanarayana, B. (1996). Texture classification using a probabilistic neural network and constraint satisfaction model. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 1, pages 424–429. IEEE, New York, NY, USA.
- Rahman, M., Yu, X., and Srinivasan, B. (1999a). A neural networks based approach for fast mining characteristic rules. In *Advanced Topics in Artificial Intelligence. 12th Australian Joint Conference on Artificial Intelligence, AI'99. Proceedings (Lecture Notes in Artificial Intelligence Vol.1747)*. Springer-Verlag, Berlin, Germany, pages 36–47.
- Rahman, M., Zhou, Q., and Hong, G. S. (1995). Application of Kohonen neural network for tool condition monitoring. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2620:422–8.
- Rahman, S. M., Karmakar, G. C., and Bignall, B. (1998). Self-organising map for shape-based image classification. In *13th International Conference on Computers and Their Applications*, pages 291–4. International Society for Computers and Their Applications—ISCA, Cary, NC, USA.
- Rahman, S. M., Karmaker, G. C., and Bignall, R. J. (1999b). Improving image classification using extended run length features. In *Visual Information and Information Systems. Third International Conference, VISUAL'99. Proceedings (Lecture Notes in Computer Science Vol.1614)*, pages 475–82, Berlin, Germany. Springer-Verlag.
- Rahman, S. M. M., Yu, X., and Martin, G. (1997). Neural network approach for data mining. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 851–854. Springer, Singapore.

- Rahmel, J. (1996a). Splitnet: a dynamic hierarchical network model. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Proceedings of the Thirteenth National Conference on Artificial Intelligence and the Eighth Innovative Applications of Artificial Intelligence Conference*, volume 2, page 1404. Springer-Verlag, Berlin, Germany.
- Rahmel, J. (1996b). Splitnet: learning of tree structured Kohonen chains. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 2, pages 1221–6. IEEE, New York, NY, USA.
- Rahmel, J. and von Wangenheim, A. (1994). The KoDiag system: case-based diagnosis with Kohonen networks. In Lisboa, P. J. G. and Taylor, M. J., editors, *Proceedings of the Workshop on Neural Network Applications and Tools*, pages 82–8, Los Alamitos, CA, USA. Dept. of Comput. Sci., Kaiserslautern Univ., Germany, IEEE Computer Society Press.
- Raiche, A. (1991). A pattern recognition approach to geophysical inversion using neural nets. *Geophysical J. International*, 105(3):629–648.
- Raivio, K. (1999). *Receiver Structures Based on Self-Organizing Maps*. PhD thesis, Helsinki University of Technology, Espoo, Finland.
- Raivio, K., Hämäläinen, A., Henriksson, J., and Simula, O. (1997a). Performance of two neural receiver structures in the presence of co-channer interference. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume IV, pages 2080–2084. IEEE Service Center, Piscataway, NJ.
- Raivio, K., Henriksson, J., and Simula, O. (1995a). Interference cancellation for PAM modulation using neural networks. In *Proc. of the Finnish Signal Processing Symposium*, pages 50–54.
- Raivio, K., Henriksson, J., and Simula, O. (1995b). Neural detection of QAM modulation in the precence of interference. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume IV, pages 1566–1569, Piscataway, NJ. IEEE Service Center.
- Raivio, K., Henriksson, J., and Simula, O. (1997b). Neural detection of QAM signal with strongly nonlinear receiver. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 20–25. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Raivio, K., Henriksson, J., and Simula, O. (1998). Neural detection of qam signal with strongly nonlinear receiver. *Neurocomputing*, 21(1):159–171.
- Raivio, K. and Kohonen, T. (1993). Detection of nonlinearly distorted and two-path propagated signals using a neural network based equalizer. In Porra, V. and Alinikula, P., editors, *XIX Convention on Radio Science, Abstracts of Papers*, pages 11–12, Espoo, Finland. Helsinki University of Technology, Electronic Circuit Design Laboratory.
- Raivio, K. and Kohonen, T. (1994). Detection of nonlinearly distorted and two-path propagated signals using SOM-based equalizers. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1037–1040, London, UK. Springer.
- Raivio, K., Simula, O., and Henriksson, J. (1991). Improving decision feedback equaliser performance using neural networks. *Electronics Letters*, 27(23):2151–2153.
- Raivio, K., Simula, O., and Laiho, J. (2001). Neural analysis of mobile radio access network. In *Proceedings 2001 IEEE International Conference on Data Mining. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 457–64.
- Raivio, O., Riihijärvi, J., and Mähönen, P. (2000). Classifying and clustering the Internet traffic by Kohonen network. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. VTT, Networking Research, Wireless Internet Laboratory, ICSC Academic Press.

- Rajaniemi, H. J. and Mahonen, P. (2002). Classifying gamma-ray bursts using self-organizing maps. *ASTROPHYSICAL JOURNAL*, 566(1):202–209.
- Ralli, E. and Hirzinger, G. (1996). A global and resolution complete path planner for up to 6DOF robot manipulators. In *Proceedings of the 1996 IEEE International Conference on Robotics and Automation*, volume 4, pages 3295–302. IEEE, New York, NY, USA.
- Ralli, E. and Hirzinger, G. (1997). Robot path planning using Kohonen maps. In *Proceedings of the 1997 IEEE/RSJ International Conference on Intelligent Robot and Systems. Innovative Robotics for Real-World Applications. IROS '97*, volume 3, pages 1224–9. IEEE, New York, NY, USA.
- Ramesh, P., Katagiri, S., and Lee, C.-H. (1991). A new connected word recognition algorithm based on HMM/LVQ segmentation and LVQ classification. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 113–116, Piscataway, NJ. IEEE Service Center.
- Ramos, A. R. M. and Barone, D. A. C. (1995). Presentation of a hybrid evolutionary classifier system. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 770–773. INNS.
- Ramsay, C. S., Sutherland, K., Renshaw, D., and Denyer, P. B. (1992). A comparison of vector quantization codebook generation algorithms applied to automatic face recognition. In Hogg, D. and Boyle, R., editors, *BMVC92. Proceedings of the British Machine Vision Conference*, pages 508–17, Berlin, Germany. Integrated Syst. Group, Edinburgh Univ. , UK, Springer-Verlag.
- Rana, O. F. (2000). Automating parallel implementation of neural learning algorithms. *International-Journal-of-Neural-Systems*, 10:227–41.
- Rangoussi, M. and Delopoulos, A. (1995). Recognition of unvoiced stops from their time-frequency representation. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 1, pages 792–5, New York, NY, USA. Dept. of Electr. Eng. , Nat. Tech. Univ. of Athens, Greece, IEEE.
- Rantanen, J. T., Laine, S. J., Antikainen, O. K., Mannermaa, J. P., Simula, O. E., and Yliruusi, J. K. (2001). Visualization of fluid-bed granulation with self-organizing maps. *JOURNAL OF PHARMACEUTICAL AND BIOMEDICAL ANALYSIS*, 24(3):343–352.
- Rao, L., He, B., and Yan, W. (1994). A novel adaptive generator based on Kohonen's neural network model and vector quantization. In *Second International Conference on Computation in Electromagnetics*, pages 193–7, London, UK. Hebei Inst. of Technol. , China, IEE.
- Rao, V., Moorthy, S., Shihab, S., and Bates, I. (1992). Application of neural network techniques to partial discharge measurements of high voltage energy systems. In Zurawski, R. and Dillon, T. S., editors, *IEEE International Workshop on Emerging Technologies and Factory Automation—Technology for the Intelligent Factory —Proceedings*, pages 441–5, Aldershot, UK. Dept. of Electr. & Manuf. Syst. Eng. , R. Melbourne Inst. of Technol. , Vic. , Australia, CRL Publishing.
- Rape, R., Fefer, D., and Jeglic, A. (1995). Detection of pc-2–5 groups of geomagnetic micropulsations with neural networks. *Measurement*, 15(2):103–17.
- Räsänen, T., Hakumäki, S. K., Oja, E., and Hakumäki, M. O. K. (1990). Analysis of r and s disordes in finnish by using a laboratory computer. *Folia Phoniatrica*, 42:135–143.
- Rath, T. (1995). Artificial neural networks for plant classification with image processing. In Cate, A. J. U. T., Martin-Clouaire, R., Dijkhuizen, A. A., and Lokhorst, C., editors, *Artificial Intelligence in Agriculture. Postprint Volume from the 2nd IFAC/IFIP/EurAgEng Workshop*, pages 183–8. Elsevier, Oxford, UK.

- Ratnasamy, S., Francis, P., Handley, M., Karp, R., and Shenker, S. (2001). A scalable content-addressable network. In *Computer Communication Review*, volume 31, pages 161–172. Dept. of Elec. Eng. and Comp. Sci., University of California, Berkeley.
- Rau, J. D. and Wang, J. H. (1999). A voting principle of multiple features for chinese character recognition system using neural network classifiers. In *IEEE SMC'99 Conference Proceedings. 1999 IEEE International Conference on Systems, Man, and Cybernetics.*, volume 6, pages 874–8, Piscataway, NJ. IEEE Service Center.
- Rauber, A. (1999). LabelSOM: on the labeling of self-organizing maps. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 5, pages 3527–32, Piscataway, NJ. IEEE Service Center.
- Rauber, A., Dittenbach, M., and Merkl, D. (2000a). Automatically detecting and organizing documents into topic hierarchies: A neural network based approach to bookshelf creation and arrangement. In *RESEARCH AND ADVANCED TECHNOLOGY FOR DIGITAL LIBRARIES, PROCEEDINGS*, pages 348–351.
- Rauber, A. and Fruhwirth, M. (2001). Automatically analyzing and organizing music archives. In *Research and Advanced Technology for Digital Libraries. 5th European Conference, ECDL 2001. Proceedings (Lecture Notes in Computer Science Vol.2163)*. Springer-Verlag, Berlin, Germany, pages 402–14.
- Rauber, A. and Merkl, D. (1998a). Creating an order in distributed digital libraries by integrating independent self-organizing maps. In *ICANN 98. Proceedings of the 8th International Conference on Artificial Neural Networks.*, volume 2, pages 773–8, London. Springer.
- Rauber, A. and Merkl, D. (1998b). Finding structure in text archives. In *6th European Symposium on Artificial Neural Networks. ESANN'98. Proceedings*, pages 179–84, Brussels, Belgium. D-Facto.
- Rauber, A. and Merkl, D. (1998c). Organization of distributed digital libraries: a neural network-based approach. In *Intelligent Data Engineering and Learning. Perspectives on Financial Engineering and Data Mining. 1st International Symposium. IDEAL'98.*, pages 283–8, Singapore. Springer-Verlag.
- Rauber, A. and Merkl, D. (1999a). Automatic labeling of self-organizing maps: making a treasure-map reveal its secrets. In *Methodologies for Knowledge Discovery and Data Mining. Third Pacific-Asia Conference, PAKDD-99. Proceedings*, pages 228–37, Berlin, Germany. Springer-Verlag.
- Rauber, A. and Merkl, D. (1999b). Mining text archives: Creating readable maps to structure and describe document collections. In *PRINCIPLES OF DATA MINING AND KNOWLEDGE DISCOVERY*, pages 524–529.
- Rauber, A. and Merkl, D. (1999c). SOMLib: a digital library system based on neural networks. In *Digital 99 Libraries. Fourth ACM Conference on Digital Libraries. ACM, New York, NY, USA*, pages 240–1.
- Rauber, A. and Merkl, D. (1999d). The SOMLib digital library system. In *RESEARCH AND ADVANCED TECHNOLOGY FOR DIGITAL LIBRARIES, PROCEEDINGS*, pages 323–342.
- Rauber, A. and Merkl, D. (1999e). Using self-organizing maps to organize document archives and to characterize subject matter: how to make a map tell the news of the world. In *Database and Expert Systems Applications. 10th International Conference, DEXA '99 (Lecture Notes in Computer Science Vol.1677)*, pages 302–11, Berlin, Germany. Springer-Verlag.
- Rauber, A. and Merkl, D. (2000). Providing topically sorted access to subsequently released newspaper editions or: how to build your private digital library. In *Database and expert systems applications. 11th International Conference, DEXA 2000. Proceedings (Lecture Notes in Computer Science Vol.1873)*. Springer-Verlag, Berlin, Germany, pages 499–508.

- Rauber, A., Schweighofer, E., and Merkl, D. (2000b). Text classification and labelling of document clusters with self-organising maps. *OEGAI-Journal*, 19:17–23.
- Rauber, A., Tomsich, P., and Merkl, D. (2000c). <sub>par</sub>SOM: A parallel implementation of the self-organizing map exploiting cache effects: Making the SOM fit for interactive high-performance data analysis. In *Proceedings of the International Joint Conference on Neural Networks*, volume 6, pages 177–182, Piscataway, NJ. Vienna Univ of Technology, IEEE.
- Raviwongse, R., Allada, V., and Sandige Jr., T. (2000). Plastic manufacturing process selection methodology using self-organizing map (SOM)/fuzzy analysis. *International Journal of Advanced Manufacturing Technology*, 16(3):155–161.
- Ray, S. and Chan, A. (2001). Automatic feature extraction from wavelet coefficients using genetic algorithms. In *Neural Networks for Signal Processing XI: Proceedings of the 2001 IEEE Signal Processing Society Workshop*. IEEE, Piscataway, NJ, USA, pages 233–41.
- RayChaudhuri, T., Yeh, J. C. H., Hamey, G. C., Sung, S. K. Y., and Westcott, T. (1995). A connectionist approach to quality assessment of food products. In Yao, X., editor, *Eighth Australian Joint Conference on Artificial Intelligence*, pages 435–41. World Scientific, Singapore.
- Recla, W. F. (1989). Study in speech recognition using a Kohonen neural network dynamic programming and multi-feature fusion. Master's thesis, Air Force Inst. of Tech., Wright-Patterson AFB, OH.
- Reddy, N. V. S. and Nagabhushan, P. (1997). A multi-stage neural network model for unconstrained handwritten numeral recognition. *Vivek*, 10(2):3–11.
- Reddy, N. V. S., Nagabhushan, P., and Gowda, K. C. (1996). A neural network based expert system model for conflict resolution. In Narasimhan, V. L. and Jain, L. C., editors, *1996 Australian New Zealand Conference on Intelligent Information Systems. Proceedings. ANZIIS 96*, pages 229–32. IEEE, New York, NY, USA.
- Redlich, A. N. (1992). Redundancy reduction as the basis for visual signal processing. *Proc. SPIE—The International Society for Optical Engineering*, 1710(pt. 1):201–210.
- Rehtanz, C. (1999). Visualisation of voltage stability in large electric power systems. In *IEE Proceedings Generation, Transmission and Distribution*, volume 146, pages 573–6.
- Rehtanz, C. and Kuhlmann, D. (1998). Application of the self-organizing map in electric power systems. In *6th European Congress on Intelligent Techniques and Soft Computing. EUFIT '98*, volume 1, pages 195–9, Aachen, Germany. Verlag Mainz.
- Reinders, A. and de Vink, P. J. F. (1992). Classification of IR-spectra with back propagation and Kohonen networks. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 2):855–65.
- Reinhardt, L., Simelius, K., Jokiniemi, T., Nenonen, J., Tierala, I., Toivonen, L., and Katila, T. (1998). Classification of body surface potential map sequences during ventricular activation using Kohonen networks. In *Proceedings of the 20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Vol.20 Biomedical Engineering Towards the Year 2000 and Beyond.*, volume 3, pages 1344–7, Piscataway, NJ. IEEE Service Center.
- Reinhardt, L., Simelius, K., Nenonen, J., Tierala, I., Mäkipää, M., Toivonen, L., and Katila, T. (1999). Source localization of ventricular arrhythmias using self-organizing neural networks. *Computers in Cardiology*, 26:331–4.
- Reinhardt, L., Vesanto, R., Montonen, J., Fetsch, T., Mäkipää, M., Sierra, G., and Breithardt, G. (1997a). Application of learning vector quantization for localization of myocardial infarction. In Boom, H., Robinson, C., Rutten, W., Neuman, M., and Wijkstra, H., editors, *Proceedings of the 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. 'Bridging Disciplines for Biomedicine'*, volume 3, pages 921–2. IEEE, New York, NY, USA.

- Reinhardt, L., Vesanto, R., Montonen, J., Fetsch, T., Mäkijärvi, M., Sierra, G., Katila, T., and Breithardt, G. (1997b). Location of myocardial infarction based on learning vector quantization networks applied to ST elevations of the 12-lead ECG. *Annals of Noninvasive Electrocardiology*, 2(4):331–337.
- Reissman, P. J. and Magnin, I. E. (1997). Modeling 3D deformable object with the active pyramid. *International Journal of Pattern Recognition and Artificial Intelligence*, 11(7):1129–39. (Parallel Image Analysis. International Workshop Conf. Date: 7–8 Dec. 1995 Conf. Loc: Lyon, France).
- Ren, C., Means, R., and McCabe, P. (1996). Image content addressable retrieval system (ICARS) using context vector approach. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2670:450–60. (Storage and Retrieval for Still Image and Video Databases IV Conf. Date: 1–2 Feb. 1996 Conf. Loc: San Jose, CA, USA Conf. Sponsor: SPIE; Soc. Imaging Sci. & Technol).
- Ren, S., Araki, Y., Uchino, Y., and Kurogi, S. (1998). Learning algorithms using firing numbers of weight vectors for wta networks in rotation invariant pattern classification. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E81-A(1):175–182.
- Rendon, E., Salgado, L., Menendez, J. M., and Garcia, N. (1997). Adaptive palette determination for color images based on Kohonen networks. In *Proceedings of the International Conference on Image Processing*, volume 1, pages 830–3. IEEE Computer Society, Los Alamitos, CA, USA.
- Resta, M. (1997). Self organizing evolutionary models in financial markets forecasting. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 187–190. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Resta, M. (1998). A hybrid neural network system for trading financial markets. In Deboeck, G. and Kohonen, T., editors, *Visual Explorations in Finance with Self-Organizing Maps*, pages 106–116. Springer, London.
- Resta, M. (1999). Hybrid neural networks vs nonlinear time series models in financial forecasting. In *Proceedings of the International ICSC Congress on Computational Intelligence Methods and Applications. ICSC Academic Press, Zurich, Switzerland*.
- Resta, M. (2000). ATA: The artificial technical analyst building intra-day market strategies. *International Conference on Knowledge-Based Intelligent Electronic Systems, Proceedings, KES*, 2:729–732.
- Resta, M. (2002). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Self-Organizing Maps and Financial Forecasting: an Application, pages 185–216. Physica-Verlag Heidelberg.
- Reutterer, T. and Natter, M. (2000). Segmentation-based competitive analysis with MULTICLUS and topology representing networks. *Computers and Operations Research*, 27(11):1227–1247.
- Reynolds, J. (1992). Visual feedback therapy with the visual ear. Report OUEL 1914/92, Univ. Oxford, Oxford, UK.
- Reynolds, J. and Tarassenko, L. (1993). Learning pronunciation with the visual ear. *Neural Computing & Application*, 1(3):169–175.
- Reynolds, R., Resssom, H., and Musavi, M. (2001). Use of clustering to improve performance in fuzzy gene expression analysis. In *International Joint Conference on Neural Networks, Washington, DC, USA, July 15–19*. CD-ROM.

- Rezai Rad, G. A. and Green, R. J. (1997). A competitive learning algorithm for non-zero memory codebook design in encoding of CT sequences. In *Proceedings of the 19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. ‘Magnificent Milestones and Emerging Opportunities in Medical Engineering’*, volume 3, pages 1342–6, Piscataway, NJ. IEEE Service Center.
- Rhee, H.-S. and Oh, K.-W. (1994). Unsupervised fuzzy clustering model with optimal clusters. In *Proc. 3rd International Conference on Fuzzy Logic, Neural Nets and Soft Computing*, pages 335–336, Iizuka, Japan. Fuzzy Logic Systems Institute.
- Riadokoro, H., Sato, K., and Ishii, M. (2000). Acquisition of world image and self-localization using sequential view images. *Transactions-of-the-Institute-of-Electronics-,Information-and-Communication-Engineers-D-II*, pages 2587–96.
- Ribes, J. M. M., Simon, B., and Macq, B. (2001). Combined kohonen neural networks and discrete cosine transform method for iterated transformation theory. *SIGNAL PROCESSING-IMAGE COMMUNICATION*, 16(7):643–656.
- Rieger, B. B. (1997). Dynamic word meaning representations and the notion of granularity. text understanding as meaning constitution by scips. In Meystel, A. M., editor, *Proceedings of the 1997 International Conference on Intelligent Systems and Semiotics: A Learning Perspective. ISAS ’97 (NIST-SP 918)*, pages 331–2. NIST, Gaithersburg, MD, USA.
- Riesenhuber, M., Bauer, H. U., Brockmann, D., and Geisel, T. (1998). Breaking rotational symmetry in a self-organizing map model for orientation map development. *Neural Computation*, 10(3):717–30.
- Riesenhuber, M., Bauer, H. U., and Geisel, T. (1996a). Analyzing phase transitions in high-dimensional self-organizing maps. *Biological Cybernetics*, 75(5):397–407.
- Riesenhuber, M., Bauer, H. U., and Geisel, T. (1996b). Analyzing the formation of structure in high-dimensional self-organizing maps reveals differences to feature map models. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 409–14. Springer-Verlag, Berlin, Germany.
- Rigoll, G. (1990a). Information theory principles for the design of self-organizing maps in combination with hidden Markov modeling for continuous speech recognition. In *Proc. IJCNN’90, International Joint Conference on Neural Networks, San Diego*, volume I, pages 569–574, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Rigoll, G. (1990b). Neural network based continuous speech recognition by combining self organizing feature maps and hidden Markov modeling. In Almeida, L. B. and Wellekens, C. J., editors, *Neural Networks. EURASIP Workshop 1990 Proceedings*, pages 205–214, Berlin, Heidelberg. Eur. Assoc. Signal Process, Springer.
- Rigoll, G. (1991). Information theory-based supervised learning methods for self-organizing maps in combination with hidden Markov modeling. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 65–68, Piscataway, NJ. IEEE, IEEE Service Center.
- Rihkanen, H., Leinonen, L., Hiltunen, T., and Kangas, J. (1994). Spectral pattern recognition of improved voice quality. *Journal of Voice*, 8:320–326.
- Ripley, B. D. (1996). *Pattern Recognition and Neural Networks*. Cambridge University Press, Cambridge, Great Britain.
- Riquelme, J., Martinez, J. L., Gomez, A., and Goma, D. C. (2000). Possibilities of artificial neural networks in short-term load forecasting. In *Proceedings of the IASTED International Conference Power and Energy Systems. IASTED/ACTA Press, Anaheim, CA, USA*, pages 165–70.

- Riskin, E. A., Atlas, L. E., and Lay, S. R. (1991). Ordered neural maps and their applications to data compression. In Juang, B. H., Kung, S. Y., and Kamm, C. A., editors, *Proc. Workshop on Neural Networks for Signal Processing*, pages 543–551, Piscataway, NJ. IEEE, IEEE Service Center.
- Ritter, H. (1988). *Selbstorganisierende Neuronale Karten*. PhD thesis, Technische Universität München, Munich, Germany.
- Ritter, H. (1989a). Asymptotic level density for a class of vector quantization processes. Report A9, Helsinki University of Technology, Laboratory of Computer and Information Science, Espoo, Finland.
- Ritter, H. (1990a). Modular networks of multiple maps. In *Proc. COGNITIVA '90*, volume II, pages 105–116, Amsterdam, Netherlands. Elsevier.
- Ritter, H. (1990b). Motor learning by 'charge' placement with Self-organizing maps. In Eckmiller, R., editor, *Neural Networks for Sensory and Motor Systems*. Elsevier, Amsterdam, Netherlands.
- Ritter, H. (1990c). Motor learning by 'charge' placement with Self-organizing maps. In Eckmiller, R., editor, *Advanced Neural Computers*, pages 381–388. Elsevier, Amsterdam, Netherlands.
- Ritter, H. (1990d). A spatial approach to feature linking. In *Proc. INNC'90 Int. Neural Network Conf.*, page 898, Dordrecht, Netherlands. Kluwer.
- Ritter, H. (1991a). Asymptotic level density for a class of vector quantization processes. *IEEE Trans. on Neural Networks*, 2(1):173–175.
- Ritter, H. (1991b). Learning with the self-organizing map. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, pages 379–384, Amsterdam, Netherlands. Elsevier.
- Ritter, H. (1991c). The Self-organizing map. In *Proc. NOLTA, 2nd Symp. on Nonlinear Theory and its Applications*, pages 5–8, Fukuoka, Japan.
- Ritter, H. (1993). Parametrized self-organizing maps. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93 International Conference on Artificial Neural Networks*, pages 568–575, London, UK. Springer.
- Ritter, H. (1994). Parametrized Self-Organizing Maps for vision learning tasks. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 803–810, London, UK. Springer.
- Ritter, H. (1997a). Learning with the parameterized self-organizing map. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, page 1. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Ritter, H. (1997b). Self-organizing maps for robot control. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 675–84. Springer-Verlag, Berlin, Germany.
- Ritter, H. (1997c). Self-organizing maps for robot control. In *Proc. ICANN'97, 7th International Conference on Artificial Neural Networks*, volume 1327 of *Lecture Notes in Computer Science*, pages 675–684. Springer, Berlin.
- Ritter, H. (1998a). Applications of the self-organizing map in electric power systems. In *Proc. EUFIT'98, 6th European Congress on Intelligent Techniques & Soft Computing*, volume 1, pages 200–204. ELITE Foundation, Aachen, Germany.
- Ritter, H. (1998b). Robotics applications of the self-organizing map. In *6th European Congress on Intelligent Techniques and Soft Computing. EUFIT '98*, volume 1, pages 200–4, Aachen, Germany. Verlag Mainz.

- Ritter, H. (1999). Self-organizing maps on non-euclidean spaces. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 97–110. Elsevier, Amsterdam.
- Ritter, H. and Kohonen, T. (1989a). Self-organizing semantic maps. Report, Helsinki Univ. of Technology, Lab. of Computer and Information Science, Espoo, Finland.
- Ritter, H. and Kohonen, T. (1989b). Self-organizing semantic maps. *Biol. Cyb.*, 61(4):241–254.
- Ritter, H. and Kohonen, T. (1990). Learning 'semantotopic maps' from context. In *Proc. IJCNN'90, International Joint Conference on Neural Networks, Washington DC*, volume I, pages 23–26, Hillsdale, NJ. Lawrence Erlbaum.
- Ritter, H., Martinetz, T., and Schulten, K. (1989a). Topology conserving maps for motor control. In Personnaz, L. and Dreyfus, G., editors, *Neural Networks, from Models to Applications*, pages 579–591. EZIDET, Paris, France.
- Ritter, H., Martinetz, T., and Schulten, K. (1989b). Wie neuronale netze roboter steuern können. *MC-Computermagazin*, 2:48–61.
- Ritter, H., Martinetz, T., and Schulten, K. (1992). *Neural Computation and Self-Organizing Maps: An Introduction*. Addison-Wesley, Reading, MA.
- Ritter, H., Obermayer, K., Schulten, K., and Rubner, J. (1991). Self-organizing maps and adaptive filters. In von Hemmen, J. L., Domany, E., and Schulten, K., editors, *Models of Neural Networks, Physics of Neural Networks*, pages 281–307. Springer, New York, NY.
- Ritter, H. and Schulten, K. (1986a). On the stationary state of Kohonen's self-organizing sensory mapping. *Biol. Cyb.*, 54:99–106.
- Ritter, H. and Schulten, K. (1986b). Topology conserving mappings for learning motor tasks. In Denker, J. S., editor, *Neural Networks for Computing, AIP Conference Proc. 151, Snowbird, Utah*, pages 376–380, New York, NY. American Inst. of Phys.
- Ritter, H. and Schulten, K. (1988a). Convergence properties of Kohonen's topology preserving maps: fluctuations, stability, and dimension selection. *Biol. Cyb.*, 60(1):59–71.
- Ritter, H. and Schulten, K. (1988b). Extending Kohonen's self-organizing mapping algorithm to learn ballistic movements. In Eckmiller, R. and Malsburg, C. v. d., editors, *Neural Computers*, pages 393–406. Springer, Berlin, Heidelberg. NATO ASI Series, Vol. F41.
- Ritter, H. and Schulten, K. (1988c). Kohonen self-organizing maps: exploring their computational capabilities. In *Proc. ICNN'88 International Conference on Neural Networks*, volume I, pages 109–116, Piscataway, NJ. IEEE Service Center.
- Ritter, H. J. (1989b). Combining self-organizing maps. In *Proc. IJCNN'89, International Joint Conference on Neural Networks, Washington DC*, volume II, pages 499–502, Piscataway, NJ. IEEE Service Center.
- Ritter, H. J. (1990e). Self-organizing maps for internal representations. *Psych. Res.*, 52:128–136.
- Ritter, H. J., Martinetz, T. M., and Schulten, K. J. (1989c). Topology-conserving maps for learning visuo-motor-coordination. *Neural Networks*, 2(3):159–168.
- Ritter, H. J., Martinetz, T. M., and Schulten, K. J. (1990). *Neuronale Netze: Eine Einführung in die Neuroinformatik selbstorganisierender Abbildungen*. Addison-Wesley, Munich, Germany.
- Rizvi, S. A. and Nasrabadi, N. M. (1999). Neural networks for image coding: A survey. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 3647, pages 46–57.
- Rizvi, S. A. and Nasrabadi, N. M. (2001a). Clutter-rejection technique for FLIR imagery using dynamic ROI extraction. In Nasrabadi, N. M. and Katsaggelos, A. K., editors, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4305, pages 1–10. Dept. of Eng. Science and Physics, College of Staten Island, University of New York.

- Rizvi, S. A. and Nasrabadi, N. M. (2001b). Neural network algorithms for automatic target recognition using forward-looking infra-red imagery: a survey. In *PINSA-A-(Proceedings-of-the-Indian-National-Science-Academy)-Part-A-(Physical-Sciences)*. vol.67, no.2, volume 67, pages 243–76.
- Rizvi, S. A., Nasrabadi, N. M., and Der, S. Z. (1999). A clutter rejection technique for FLIR imagery using region-based principal component analysis. In *Proceedings 1999 International Conference on Image Processing*, volume 4, pages 415–19, Piscataway, NJ. IEEE Service Center.
- Rizvi, S. A., Saadawi, T. N., and Nasrabadi, N. M. (2000). A clutter rejection technique for FLIR imagery using region based principal component analysis. *Pattern-Recognition*, 33:1931–3.
- Rizzo, R. (2001). LBG-m: A modified LBG architecture to extract high-order neural structures. In *Proceedings of the International Joint Conference on Neural Networks*, volume 2, pages 779–783. CNR, ITDF.
- Rizzo, R., Allegra, M., and Fulantelli, G. (1999). Hypertext-like structures through a SOM network. In *Hypertext '99. Returning to our Diverse Roots. The 10th ACM Conference on Hypertext and Hypermedia*. ACM, New York, NY, USA, pages 71–2.
- Roberts, S. and Tarassenko, L. (1991). EEG analysis using self-organisation. In *Proc. Second International Conference on Artificial Neural Networks*, pages 210–213, London, UK. IEE, IEE.
- Roberts, S. and Tarassenko, L. (1992a). Analysis of the human EEG using self-organising neural nets. In *IEE Colloquium on 'Neurological Signal Processing' (Digest No. 069)*, pages 6/1–3, London, UK. IEE, IEE.
- Roberts, S. and Tarassenko, L. (1992b). Analysis of the sleep EEG using a multilayer network with spatial organisation. *IEE Proc. F [Radar and Signal Processing]*, 139(6):420–425.
- Roberts, S. and Tarassenko, L. (1992c). New method of automated sleep quantification. *Med. & Biol. Eng. & Comput.*, 30(5):509–517.
- Rodrigues, J. S. and Almeida, L. B. (1990). Improving the learning speed in topological maps of patterns. In *Proc. INNC'90, Int. Neural Networks Conference*, pages 813–816, Dordrecht, Netherlands. Kluwer.
- Rodrigues, J. S. and Almeida, L. B. (1991). Improving the convergence in Kohonen topological maps. In Gelenbe, E., editor, *Neural Networks: Advances and Applications*, pages 63–78. North-Holland, Amsterdam, Netherlands.
- Rodriguez, M. J., del Pozo, F., and Arredondo, M. T. (1993a). Use of unsupervised neural networks for classification of blood pressure time series. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation. International Workshop on Artificial Neural Networks. IWANN '93 Proceedings*, pages 536–41, Berlin, Germany. ETSI de Telecommunicacion, Univ. Politecnica de Madrid, Spain, Springer-Verlag.
- Rodriguez, M. J., del Pozo, F., Arredondo, M. T., and Gomez, E. (1993b). Use of unsupervised neural networks for blood pressure profile classification. In *Proceedings. Computers in Cardiology 1993*, pages 225–8, Los Alamitos, CA, USA. Grupo de Bioingenieria, ETSI Telecom. , Madrid, Spain, IEEE Computer Society Press.
- Rodriguez Arroyo, J. M., Allinson, N., and Beddoes, A. J. (2001). Self-organising maps for the condition monitoring of 11kV paper insulated cables. In *International Joint Conference on Neural Networks, Washington, DC, USA, July 15–19*. CD-ROM.
- Rodríguez Arroyo, J. M., Boddoes, A. J., and Allinson, N. M. (2001). Self-organising maps for condition assessment of paper insulated cables. In Allison, N., Yin, H., Allison, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 253–8. Springer.

- Rodríguez-Fonollosa, J. A., Masgrau, E., and Moreno, A. (1990). Robust LPC vector quantization based on Kohonen's design algorithm. In Torres, L., Masgrau, E., and Lagunas, M. A., editors, *Signal Processing V. Theories and Applications. Proc. of EUSIPCO-90, Fifth European Signal Processing Conference*, volume II, pages 1303–1306, Amsterdam, Netherlands. CIDEM; CIRIT; IBM; et al, Elsevier.
- Rodríguez, M. J., Francisco del Pozo, and Arredondo, M. T. (1993). Use of unsupervised neural networks for classification of blood pressure time series. In *Proc. WCNN'93, World Congress on Neural Networks*, volume II, pages 469–472, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Röfer, T. (1994). VierLING—quadruped with integrated neural balance control. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1311–1314, London, UK. Springer.
- Röfer, T. (1995). Image-based homing using a self-organizing feature map. In Fogelman-Soulié, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume I, pages 475–480, Nanterre, France. EC2.
- Rogers, S. K. and Kabrisky, M. (1989). 1988 AFIT neural network research. In *Proc. IEEE National Aerospace and Electronics Conf.*, pages 688–694, Piscataway, NJ. IEEE, Dayton Section, Dayton, OH, USA; IEEE, Aerospace and Electronic Systems Soc, New York, NY, USA, IEEE Service Center.
- Rögnvaldsson, T. (1993). Pattern discrimination using feedforward networks: A benchmark study of scaling behavior. *Neural Computation*, 5:483–491.
- Rogozan, A. and Deleglise, P. (1998). Hybrid hidden Markov model/neural network models for speechreading. In *6th European Symposium on Artificial Neural Networks. ESANN'98. Proceedings*, pages 377–82, Brussels, Belgium. D-Facto.
- Roh, Y. J. and Cho, H. S. (2001). Design and analysis of x-ray digital tomosynthesis system. In *Proceedings of the SICE Annual Conference*, pages 252–258. Department of Mechanical Engineering, Korea Adv. Inst. Sci. and Technology.
- Roh, Y. J., Ko, K. W., Cho, H. S., Kim, H. C., Joo, H. N., and Kim, S. K. (1999). Inspection of ball grid array (BGA) solder joints using x-ray cross-sectional images. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 3836, pages 168–178.
- Romero, G., Castillo, P. A., Merelo, J. J., and Prieto, A. (2001). Using SOM for neural network visualization. In *Connectionist Models of Neurons, Learning Processes, and Artificial Intelligence. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part I (Lecture Notes in Computer Science Vol. 2084)*. Springer-Verlag, Berlin, Germany, pages 629–36.
- Rong, S. and Bhanu, B. (1994). Characterizing natural backgrounds for target detection. In *Image Understanding Workshop. Proceedings*, volume 1, pages 501–4. Morgan Kaufmann Publishers, San Francisco, CA, USA.
- Rong, S. and Bhanu, B. (1995). Enhancing a Self-Organizing Map through near-miss injection. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 552–556. INNS.
- Rong, S. and Bhanu, B. (1996). Enhancing a self-organizing map through near-miss injection. In Alander, J., Honkela, T., and Jakobsson, M., editors, *WCNN '95. World Congress on Neural Networks. 1995 International Neural Network Society Annual Meeting*, volume 1, pages 552–6. Univ. Vaasa, Vaasa, Finland.
- Roobaert, D. and van Hulle, M. M. (1998). The SIM neural module: self-organized learning of 2D invariant representations. In *Proceedings of SSAB98*, pages 153–156, Uppsala, Sweden.
- Röpke, K. and Filbert, D. (1994). Unsupervised classification of universal motors using modern clustering algorithms. In *Proc. SAFEPROCESS'94, IFAC Symp. on Fault Detection, Supervision and Technical Processes*, volume II, pages 720–725.

- Ros, F., Audouze, K., Pintore, M., and Chretien, J. R. (2000). Hybrid systems for virtual screening: Interest of fuzzy clustering applied to olfaction. *SAR AND QSAR IN ENVIRONMENTAL RESEARCH*, 11(3–4):281–+.
- Rosandich, R. G. (1995). Implementation of competitive learning in the havnet neural network. In Dagli, C. H., Akay, M., Chen, C. L. P., Fernandez, B. R., and Ghosh, J., editors, *Intelligent Engineering Systems Through Artificial Neural Networks. Vol. 5. Fuzzy Logic and Evolutionary Programming. Proceedings of the Artificial Neural Networks in Engineering (ANNIE'95)*, pages 173–8. ASME Press, New York, NY, USA.
- Rosario, B., Lovell, D. R., Niranjan, M., Prager, R. W., Dalton, K. J., and Derom, R. (1998). Self-organization with a large medical database: using GTM for prediction and clustering. In Marinaro, M. and Tagliaferri, R., editors, *Neural Nets WIRN-VIETRI-97. Proceedings of the 9th Italian Workshop on Neural Nets*, pages 257–62. Springer-Verlag London, London, UK.
- Rose, V. S., Croall, I. F., and MacFie, H. J. H. (1991). An application of unsupervised neural network methodology (Kohonen topology-preserving mapping) to QSAR analysis. *Quant. Struct. Act. Relat.*, 10(6):6–15.
- Rosqvist, T., Paajanen, E., Kallio, K., Rajala, H. M., Katila, T., Piirila, P., Malmberg, P., and Sovijarvi, A. (1995). Toolkit for lung sound analysis. *Medical & Biological Engineering & Computing*, 33(2):190–5.
- Rousset, P. and Guinot, C. (2001). Distance between kohonen classes visualization tool to use SOM in data set analysis and representation. In *Bio-Inspired Applications of Connectionism. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part II. (Lecture Notes in Computer Science Vol.2085)*. Springer-Verlag, Berlin, Germany, pages 119–26.
- Roussinov, D. G. and Chen, H. (1998). A scalable self-organizing map algorithm for textual classification: a neural network approach to thesaurus generation. *CC-AI, The Journal for the Integrated Study of Artificial Intelligence, Cognitive Science and Applied Epistemology*, 15(1–2):81–111.
- Roussinov, D. G. and Chen, H. (1999). Document clustering for electronic meetings: An experimental comparison of two techniques. *Decision Support Systems*, 27(1):67–79.
- Roverso, D. (2000). Soft computing tools for transient classification. *Information Sciences*, 127(3):137–156.
- Roverso, D. and Fantoni, P. F. (1998). ALADDIN: a neural classifier of fast transients for alarm filtering in nuclear power plants. In *Fuzzy Logic and Intelligent Technologies for Nuclear Science and Industry. Proceedings of the 3rd International FLINS Workshop*, Singapore. World Scientific.
- Rovetta, S., Zunino, R., Buffrini, L., and Rovetta, G. (1995). Prototyping neural networks learn lyme borreliosis. In *Proceedings of the Eighth IEEE Symposium on Computer-Based Medical Systems*, pages 111–17, Los Alamitos, CA, USA. Fac. of Eng. , Genova Univ. , Italy, IEEE Computer Society Press.
- Rozgonyi, T., Fomin, T., and Lorincz, A. (1994). Self-organizing scaling filters for image segmentation. In *1994 IEEE International Conference on Neural Networks. IEEE World Congress on Computational Intelligence*, volume 7, pages 4380–3, New York, NY, USA. Dept. of Photophys. , Inst. of Isotopes, Hungarian Acad. of Sci. , Budapest, Hungary, IEEE.
- Rozmus, J. M. (1995). Information retrieval by self-organizing maps. In Williams, M. E., editor, *16th National Online Meeting Proceedings—1995*, pages 349–54, Medford, NJ, USA. Smart Syst. , USA, Learned Inf.
- Rozmus, J. M. (1996). The density-tracking self-organizing map. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 1, pages 44–9. IEEE, New York, NY, USA.

- Rubner, J., Schulten, K., and Tavan, P. (1990). A self-organizing network for complete feature extraction. In *Proc. International Conference on Parallel Processing in Neural Systems and Computers (ICNC), Düsseldorf*, pages 365–368, Amsterdam, Netherlands. Elsevier.
- Rubner, J. and Schulten, K. J. (1990). Development of feature detectors by self-organization. *Biol. Cyb.*, 62:193–199.
- Rubo, Z., Yu, S., Xingoe, W., Guangmin, Y., and Guochang, G. (2000). Research on reinforcement learning of the intelligent robot based on self-adaptive quantization. In *Proceedings of the 3rd World Congress on Intelligent Control and Automation. IEEE, Piscataway, NJ, USA*, volume 2, pages 1226–9.
- Ruckert, U., Kreuzer, I., Tryba, V., and Goser, K. (1989). Fault-tolerance of associative memories based on neural networks. In *Proceedings. VLSI and Computer Peripherals. VLSI and Microelectronic Applications in Intelligent Peripherals and their Interconnection Networks*, volume I, pages 52–55, Washington, DC, USA. IEEE; Gesellschaft fur Inf. ; Verband Deutscher Elektrotech, IEEE Computer Society Press.
- Rueping, S., Goser, K., and Rueckert, U. (1994). A chip for self-organizing feature maps. In *Proceedings of the Fourth International Conference on Microelectronics for Neural Networks and Fuzzy Systems*, pages 26–33, Los Alamitos, CA, USA. Bauelemente der Elektrotech. , Dortmund Univ. , Germany, IEEE Computer Society Press.
- Rueping, S., Porrmann, M., and Rueckert, U. (1998). Som accelerator system. *Neurocomputing*, 21(1):31–50.
- Ruf, B. and Schmitt, M. (1997). Unsupervised learning in networks of spiking neurons using temporal coding. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference on Artificial Neural Networks Proceedings*, pages 361–6. Springer-Verlag, Berlin, Germany.
- Ruf, B. and Schmitt, M. (1998a). Self-organization of spiking neurons using action potential timing. *IEEE Transactions on Neural Networks*, 9(3):575–578.
- Ruf, B. and Schmitt, M. (1998b). Self-organizing maps of spiking neurons using temporal coding. In Bower, J. M., editor, *Computational Neuroscience: Trends in Research, 1998*, pages 509–514, Plenum Press, New York.
- Ruggeri, A. and Danzi, G. (1994). Artificial neural networks for the classification of electrophoretic patterns. In Hamza, M. H., editor, *1995 IEEE Engineering in Medicine and Biology 17th Annual Conference and 21 Canadian Medical and Biological Engineering Conference*, volume 1, pages 825–6. IASTED, Anaheim, CA, USA.
- Ruisánchez, I., Potokar, P., Zupan, J., and Smolej, V. (1996). Classification of energy dispersion X-ray spectra of mineralogical samples by artificial neural networks. *Journal of Chemical Information and Computer Sciences*, 36(2):214–20.
- Ruiz-De-Angulo, V. and Torras, C. (1996). Automatic recalibration of a space robot: an industrial prototype. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 635–40. Springer-Verlag, Berlin, Germany.
- Ruiz-De-Angulo, V. and Torras, C. (1997). Self-calibration of a space robot. *IEEE Transactions on Neural Networks*, 8:951–963.
- Ruiz-Del-Solar, J. (1997). TEXSOM: A new architecture for texture segmentation. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 227–232. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Ruiz-Del-Solar, J. (1998). Texsom: Texture segmentation using self-organizing maps. *Neurocomputing*, 21(1):7–18.

- Ruiz-Del-Solar, J. and Koeppen, M. (1996). Automatic generation of oriented filters for texture segmentation. In *Proceedings International Workshop on Neural Networks for Identification, Control, Robotics, and Signal/Image Processing*, pages 212–220. IEEE, Los Alamitos, CA, USA.
- Ruiz-Del-Solar, J. and Kottow, D. (1999). ASGCS: a new self-organizing network for automatic selection of feature variables. In *Engineering Applications of Bio-Inspired Artificial Neural Networks. International Work-Conference on Artificial and Natural Neural Networks, IWANN'99. Proceedings, (Lecture Notes in Computer Science Vol.1607)*, volume 2, pages 805–13, Berlin, Germany. Springer-Verlag.
- Ruiz-del Solar, J. and Kottow, D. (2000). Bio-inspired texture segmentation architectures. In *BIOLOGICALLY MOTIVATED COMPUTER VISION, PROCEEDING*, pages 444–452.
- Ruiz del Solar, J. and Kottow, D. (2000). Neural-based architectures for the segmentation of textures. In *Proceedings 15th International Conference on Pattern Recognition. ICPR-2000. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 3, pages 1080–3.
- Ruoppila, V. T., Sorsa, T., and Koivo, H. N. (1993). Recursive least-squares approach to self-organizing maps. In *Proc. ICNN'93, International Conference on Neural Networks*, volume III, pages 1480–1485, Piscataway, NJ. IEEE, IEEE Service Center.
- Ruping, S. and Muller, J. (1999). Analysis of IC fabrication processes using self-organizing maps. In *ICANN99. Ninth International Conference on Artificial Neural Networks (IEE Conf. Publ. No.470)*, volume 2, pages 631–6, London, UK. IEE.
- Rüping, S., Porrmann, M., and Rückert, U. (1997). SOM hardware-accelerator. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 136–141. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Ruping, S., Porrmann, M., and Ruckert, U. (1997). A high performance SOFM hardware-system. In Mira, J., Moreno-Diaz, R., and Cabestany, J., editors, *Biological and Artificial Computation: From Neuroscience to Technology. International Work Conference on Artificial and Natural Neural Networks, IWANN'97. Proceedings*, pages 772–81. Springer-Verlag, Berlin, Germany.
- Ruping, S., Ruckert, U., and Goser, K. (1993). Hardware design for self organizing feature maps with binary input vectors. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation. International Workshop on Artificial Neural Networks. IWANN '93 Proceedings*, pages 488–93, Berlin, Germany. Dept. of Electr. Eng. , Dortmund Univ. , Germany, Springer-Verlag.
- Rüping, S., Rückert, U., Goser, K., and Hartung, M. (1996). Diagnosis-system with self-organizing feature maps and fuzzy-logic. In *Neural Networks and Their Applications. Conference Proceedings*, pages 251–8. Domaine Univ. Saint-Jerome, Marseille, France.
- Rushmeier, H., Lawrence, R., and Almasi, G. (1997). Case study: visualizing customer segmentations produced by self organizing maps. In Yagel, R. and Hagen, H., editors, *Proceedings. Visualization '97*, pages 463–6. IEEE, New York, NY, USA.
- Russel, A. J. M. and Schouten, T. E. (1993). FIELDNET, a dynamic network for pattern classification. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 456–459, London, UK. Springer.
- Ruwisch, D., Bode, M., and Purwins, H. G. (1993). Parallel hardware implementation of Kohonen's algorithm with an active medium. *Neural Networks*, 6(8):1147–57.
- Ruwisch, D., Bode, M., and Purwins, H. G. (1994). Parallel Kohonen hardware with low connectivity based on active media. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1335–1338, London, UK. Springer.

- Ruwisch, D., Dobrzewski, B., and Bode, M. (1997). Wave propagation as a neural coupling mechanism: hardware for self-organizing feature maps and the representation of temporal sequences. In Principe, J., Gile, L., Morgan, N., and Wilson, E., editors, *Neural Networks for Signal Processing VII. Proceedings of the 1997 IEEE Signal Processing Society Workshop*, pages 306–15. IEEE, New York, NY, USA.
- Ruzicka, P. and Hrycej, D. (1993). Topological maps for invariant features representation and analysis of their self-organization. In *Sixth International Conference. Neural Networks and their Industrial and Cognitive Applications. NEURO-NIMES 93 Conference Proceedings and Exhibition Catalog*, pages 435–44, Nanterre, France. Inst. of Comput. Sci. , Acad. of Sci. , Prague, Czech Republic, EC2.
- Ryan, T. W. and Cotter, C. A. (1988). Vector quantization training by a self-organizing neural network. *Recent advances in sensors, radiometry and data processing for remote sensing*, 924:312–320.
- Ryu, J. and Cho, S. B. (2001). Gender recognition of human behaviors using neural ensembles. In *Proceedings of the International Joint Conference on Neural Networks*, volume 1, pages 571–576. Yonsei University, Department of Computer Science.
- Saarinen, J. (1991). *Studies of Parallel Processing Systems for Computationally Intensive Scientific Simulations*. PhD thesis, Tampere University of Technology, Tampere, Finland.
- Saarinen, J., Kallioniemi, I., Niinisto, A., and T., F. A. (1999). Surface roughness measurement with optical scatterometry [and neural network model]. In *Proceedings-of-the-SPIE –The-International-Society-for-Optical-Engineering. vol.3897*, volume 3897, pages 570–7.
- Saarinen, J. and Kohonen, T. (1985). Self-organized formation of colour maps in a model cortex. *Perception*, 14:711–719.
- Saarinen, J., Lindroos, M., Tomberg, J., and Kaski, K. (1992). Parallel coprocessor for Kohonen’s self-organizing neural network. In Prasanna, V. K. and Canter, L. H., editors, *Proceedings of the Sixth International Parallel Processing Symposium*, pages 537–42, Los Alamitos, CA, USA. Microelectron. Lab. , Tampere Univ. of Technol. , Finland, IEEE Computer Society Press.
- Saban, M. R., Hellmich, H., Nguyen, N. B., Winston, J., Hammond, T. G., and Saban, R. (2001). Time course of LPS- induced gene expression in a mouse model of genitourinary inflammation. *PHYSIOLOGICAL GENOMICS*, 5(3):147–160.
- Sabisch, T., Ferguson, A., and Bolouri, H. (1997). Rotation, translation, and scaling tolerant recognition of complex shapes using a hierarchical self-organizing neural network. In Kasabov, N., Kozma, R., Ko, K., O’Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 1174–1178. Springer, Singapore.
- Sabourin, R., Cheriet, M., and Genest, G. (1993). An extended-shadow-code based approach for off-line signature verification. In *Proceedings of the Second International Conference on Document Analysis and Recognition*, pages 1–5, Los Alamitos, CA, USA. Dept. de Genie de la Production Automatisee, Ecole de Technol. Superiere, Montreal, Que. , Canada, IEEE Computer Society Press.
- Sadananda, R. and Shestra, A. (1993). Topological maps for VLSI placement. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1955–1958, Piscataway, NJ. JNNS, IEEE Service Center.
- Sadananda, R. and Shrestha, A. (1994). A self-organizing scheme for VLSI placement. In Liebowitz, J., editor, *Moving Towards Expert Systems Globally in the 21st Century*, pages 1280–7, Elmsford, NY, USA. Div. of Comput. Sci. , Asian Inst. of Technol. , Bangkok, Thailand, Cognizant Commun. Corp.

- Sadeghi, A. A. (1996). Asymptotic behaviour of self-organizing maps with non-uniform stimuli distribution. Technical Report 166, Universität Kaiserslautern, Fachbereich Mathematik, Kaiserslautern, Germany.
- Sadeghi, A. A. (1997). Self-organization property of Kohonen's map with general type of stimuli distribution. Technical Report 181, Universität Kaiserslautern, Fachbereich Mathematik, Kaiserslautern, Germany.
- Sadeghi, A. A. (1998a). Asymptotic behavior of self organizing maps with nonuniform stimuli distribution. *Annals of Applied Probability*, 8:281–299.
- Sadeghi, A. A. (1998b). Self-organization property of Kohonen's map with general type of stimuli distribution. *Neural Networks, Signal Processing [IEE Proc VISION IMAGE Signal Proc]*, 11(9):1637–1643.
- Sadeghi, A. A. (2001). Convergence in distribution of the multi-dimensional kohonen algorithm. *JOURNAL OF APPLIED PROBABILITY*, 38(1):136–151.
- Sagar, B. S. D. (2001). Generation of self organized critical connectivity network map (SOCCNM) of randomly situated water bodies during flooding process. *DISCRETE DYNAMICS IN NATURE AND SOCIETY*, 6(3):225–228.
- Saggaf, M. M. and Nebrija, E. L. (2000). Estimation of lithologies and depositional facies from wire-line logs. *AAPG Bulletin (American Association of Petroleum Geologists)*, 84(10):1633–1646.
- Saheb Zamani, M. and Hellestrand, G. R. (1995a). The floorplanning of hierarchical design using self-organizing neural networks. In *Proc. EANN'95, Engineering Applications of Artificial Neural Networks*, pages 279–282. Finnish Artificial Intelligence Society.
- Saheb Zamani, M. and Hellestrand, G. R. (1995b). A neural network approach to the placement problem. In *Proceedings of the ASP-DAC'95/CHDL'95/VLSI'95. Asia and South Pacific Design Automation Conference. IFIP International Conference on Computer Hardware Description Languages and their Applications. IFIP Interntional Conference on Very Large Scale Integration*, pages 413–16, Tokyo, Japan. Nihon Gakkai Jimu Senta.
- Saheb Zamani, M. and Hellestrand, G. R. (1995c). A new neural network approach to the floor-planning of hierarchical VLSI designs. In Aityan, S. K., Grujic, L. T., Hathaway, R. J., Ladde, G. S., Medhin, N., and Sambandham, M., editors, *Proceedings of Neural, Parallel and Scientific Computations. Vol. 1. Proceedings of the First International Conference*, pages 399–402, Atlanta, GA, USA. Sch. of Comput. Sci. & Eng. , New South Wales Univ. , Sydney, NSW, Australia, Dynamic Publishers.
- Sahep Zamani, M. and Hellestrand, G. R. (1995). Placement with self-organizing neural networks. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume V, pages 2185–2189, Piscataway, NJ. IEEE Service Center.
- Sakamoto, S. and Kobuchi, Y. (2000). Convergence property of topographic mapping formation from cell layer to cell layer through correlation learning rule. *Neural Networks*, 13(7):709–718.
- Sakar, A. and Mammone, R. J. (1993). Growing and pruning neural tree networks. *IEEE Trans. on Computers*, 42(3):291–299.
- Sako, H. (1994). Pattern identification using line-codebooks. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 3072–3077, Piscataway, NJ. IEEE Service Center.
- Sakuraba, Y., Nakamoto, T., and Moriizumi, T. (1990). New method of learning vector quantization using fuzzy theory. *Trans. Inst. of Electronics, Information and Communication Engineers*, J73D-II(11):1863–1871.
- Sakuraba, Y., Nakamoto, T., and Moriizumi, T. (1991). New method of learning vector quantization using fuzzy theory. *Systems and Computers in Japan*, 22(13):93–103.

- Sakuraba, Y., Nakamoto, T., and Moriizumi, T. (1992). Expression of odor sensory quantity by neural network. In *Proc. 7th Symp. on Biological and Physiological Engineering*, pages 115–120, Toyohashi, Japan. Toyohashi University of Technology. (in Japanese).
- Sallis, P., Hill, L., Janee, G., Lovette, K., and Masi, C. (1999). A methodology for profiling users of large interactive systems incorporating neural network data mining techniques. In *Managing Information Technology Resources in Organizations in the Next Millennium. 1999 Information Resources Management Association International Conference*, pages 994–8, Hershey, PA, USA. Idea Group Publishing.
- Salmela, P., Kuusisto, S., Saarinen, J., Laurila, K., and Haavisto, P. (1996a). The hybrid of self-organizing map and multilayer perceptron in isolated spoken number recognition. In *WCNN'96. World Congress on Neural Networks. International Neural Network Society 1996 Annual Meeting*, pages 63–8. Lawrence Erlbaum Associates, Mahwah, NJ, USA.
- Salmela, P., Kuusisto, S., Saarinen, J., Laurila, K., and Haavisto, P. (1996b). Isolated spoken number recognition with hybrid of self-organizing map and multilayer perceptron. In *ICNN '96. The 1996 IEEE International Conference on Neural Networks*, volume 4, pages 1912–17. IEEE, New York, NY, USA.
- Salvini, R. L. and de Carvalho, L. A. (2000). Elastic neural net algorithm for cluster analysis. In *Proceedings. Vol.1. Sixth Brazilian Symposium on Neural Networks. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 191–5.
- Samad, T. and Harp, S. A. (1991). Feature map learning with partial training data. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, volume II, page 949, Piscataway, NJ. IEEE Service Center.
- Samad, T. and Harp, S. A. (1992). Self-organization with partial data. *Network: Computation in Neural Systems*, 3(2):205–212.
- Samarabandu, J. K. and Jakubowicz, O. G. (1990). Principles of sequential feature maps in multi-level problems. In *Proc. IJCNN-90, Int. Joint Conference on Neural Networks, Washington, DC*, volume II, pages 683–686, Hillsdale, NJ. Lawrence Erlbaum.
- Samuel, P. D. and Pines, D. J. (2001). Classifying helicopter gearbox faults using a normalized energy metric. *Smart Materials and Structures*, 10(1):145–153.
- Sanchez, J. S., Pla, F., and Ferri, F. J. (1999). Learning vector quantization with alternative distance criteria. In *Proceedings 10th International Conference on Image Analysis and Processing*, pages 84–9, Los Alamitos, CA, USA. IEEE Computer Society Press.
- Sanchez, J. S., Pla, F., and Ferri, F. J. (2000). Adaptive learning from nearest centroid neighbours for the nearest neighbour rule. *Pattern Recognition and Applications (Frontiers in Artificial Intelligence and Applications Vol.56)*. IOS Press, Amsterdam, Netherlands; viii+287 pp.p.29–36, pages 29–36.
- Sandidge, T. E. and Dagli, C. H. (1997). Derivation of fuzzy membership functions using one-dimensional self-organizing maps. *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics.*, 2:995–998.
- Sandidge, T. E. and Dagli, C. H. (1998). Construction of fuzzy membership functions using interactive self-organizing maps. *Proceedings of the SPIE—The International Society for Optical Engineering*, 3390:282–6.
- Sanguineti, V. and Morasso, P. (1994). Self-organization of an equilibrium-point motor controller. In Marinaro, M. and Morasso, P., editors, *International Conference on Artificial Neural Networks*, volume 1, pages 86–89. Springer-Verlag, London.
- Sanguineti, V., Morasso, P., and Tsuji, T. (1993a). Run-time robot planning. In *Proceedings of the International Joint Conference on Neural Networks (IJCNN'93-Nagoya 25–29 october '93)*, volume 2, pages 2815–2818.

- Sanguineti, V., Spada, G., and Morasso, P. (1995). Function approximation by interconnected distributed representations. In Fogelman, F., editor, *Proceedings of the International Conference on Artificial Neural Networks (ICANN'95—Paris October 9–13)*, volume 2, pages 87–91.
- Sanguineti, V., Tsuji, T., and Morasso, P. (1993b). A dynamical model for the generation of curved trajectories. In Gielen, S. and Kappen, B., editors, *Proceedings of ICANN'93 (Amsterdam, September 13–16)*, London. Springer Verlag.
- Sankaran, V., Embrechts, M. J., Harsson, L.-E., and Kraft, R. P. (1995). Back-propagation applications in electronics manufacturing —solder joint classification. In *Proc. WCNN'95, World Congress on Neural Networks*, volume II, pages 642–645. INNS.
- Sano, H., Iwahori, Y., and Ishii, N. (1994). Attention to feature region in neural network. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 1537–1541, Piscataway, NJ. IEEE Service Center.
- Santini, S. (1996). The self-organizing field. *IEEE Transactions on Neural Networks*, 7(6):1415–23.
- Santos Andre, T. C. S. and da Silva, A. C. R. (1999). A neural network made of a Kohonen's som coupled to a MLP trained via backpropagation for the diagnosis of malignant breast cancer from digital mammograms. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 5, pages 3647–50, Piscataway, NJ. IEEE Service Center.
- Saraceno, C. and Leonardi, R. (1998). Identification of visual correlations between non-consecutive shots in digital image sequences. *VLBV98. Univ. Illinois, Urbana, IL, USA*, pages 65–8.
- Sardy, S. and Ibrahim, L. (1996). Experimental medical and industrial applications of neural networks to image inspection using an inexpensive personal computer. *Optical Engineering*, 35(8):2182–7.
- Sardy, S., Wihartini, and Jatno, S. (2001). The area change detection on synthetic aperture radar images by using wavelet transform and neural networks. In *Proceedings of the IASTED International Conference. Artificial Intelligence and Applications. ACTA Press, Anaheim, CA, USA*, pages 148–52.
- Sarkaria, S. S., Harget, A. J., and Claridge, E. (1992). Shape recognition using the Kohonen self-organising feature map. *Pattern Recognition Letters*, 13(3):189–194.
- Sarukkai, R. R. (1995). Solving xor with a single layered perceptron by supervised self-organization of multiple output labels per class. In *1995 IEEE International Conference on Neural Networks Proceedings*, volume 5, pages 2807–10. IEEE, New York, NY, USA.
- Sarzeaud, O. and Stephan, Y. (2000a). Data interpolation using kohonen networks. In *Proceedings of the International Joint Conference on Neural Networks*, volume 6, pages 197–202, Piscataway, NJ. ECTIA, IEEE.
- Sarzeaud, O. and Stephan, Y. (2000b). Fast interpolation using kohonen self-organizing neural networks. In *Theoretical Computer Science. Exploring New Frontiers of Theoretical Informatics. International Conference IFIP TCS 2000. Proceedings (Lecture Notes in Computer Science Vol.1872). Springer-Verlag, Berlin, Germany*, pages 126–39.
- Sarzeaud, O., Stephan, Y., Le Corte, F., and Kerleguer, L. (1994). Neural meshing of a geographical space in regard to oceanographic data location. In *OCEANS 94. Oceans Engineering for Today's Technology and Tomorrow's Preservation. Proceedings*, volume 1, pages I/335–9, New York, NY, USA. CETIIS, Aux-en-Provence, France, IEEE.
- Sarzeaud, O., Stephan, Y., and Touzet, C. (1990). Application of self organising maps to the generation of finite element meshes. In *Neuro-Nîmes '90. Third Int. Workshop. Neural Networks and Their Applications*, pages 81–96, Nanterre, France. ARC; JSAI; SEE, EC2. (in French).
- Sarzeaud, O., Stephan, Y., and Touzet, C. (1991). Finite element meshing using Kohonen's self-organizing maps. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1313–1317, Amsterdam, Netherlands. North-Holland.

- Sasaki, N. and Ishikawa, M. (2000). Gesture recognition for dynamic scene images. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 221–6.
- Sase, M., Hirano, T., Beppu, T., and Kosugi, Y. (1992). Dimension reduction of working space by neural networks. *Robot*, 84:106–110. (in Japanese).
- Sato, A. (1999). Analysis of initial state dependence in generalized LVQ. In *IEE Conference Publication*, volume 2, pages 928–933.
- Sato, A. (2000). A learning method for definite canonicalization based on minimum classification error. In *Proceedings 15th International Conference on Pattern Recognition. ICPR-2000. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 2, pages 199–202.
- Sato, A. (2001). Discriminative dimensionality reduction based on generalized LVQ. In *ARTIFICIAL NEURAL NETWORKS-ICANN 2001, PROCEEDINGS*, pages 65–72.
- Sato, A. and Tsukumo, J. (1994). A criterion for training reference vectors and improved vector quantization. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 161–166, Piscataway, NJ. IEEE Service Center.
- Sato, A. and Yamada, K. (1996). Generalized learning vector quantization. In Touretzky, D. S., Mozer, M. C., and Hasselmo, M. E., editors, *Advances in Neural Information Processing Systems 8. Proceedings of the 1995 Conference*, pages 423–9. MIT Press, Cambridge, MA, USA.
- Sato, A. and Yamada, K. (1998a). An analysis of convergence in generalized LVQ. In Niklasson, L., Bodén, M., and Ziemke, T., editors, *Proceedings of ICANN98, the 8th International Conference on Artificial Neural Networks*, volume 1, pages 170–176. Springer, London.
- Sato, A. and Yamada, K. (1998b). A formulation of learning vector quantization using a new misclassification measure. In Jain, A. K., Venkatesh, S., and Lovell, B. C., editors, *Proceedings. Fourteenth International Conference on Pattern Recognition*, volume 1, pages 322–5. IEEE Computer Society, Los Alamitos, CA, USA.
- Sato, A. and Yamada, K. (1999). A formulation of learning vector quantization using a new misclassification measure. *Transactions of the Institute of Electronics, Information and Communication Engineers D II*, pages 650–9.
- Sato, A., Yamada, K., and Tsukumo, J. (1993). A multi-template learning method based on LVQ. In *Proc. ICNN'93, International Conference on Neural Networks*, volume II, pages 632–637, Piscataway, NJ. IEEE, IEEE Service Center.
- Satonaka, T., Baba, T., Chikamura, T., Otsuki, T., and Meng, T. H. (1997). A dct-based adaptive metric learning model using asymptotic local information measure. In Principe, J., Gile, L., Morgan, N., and Wilson, E., editors, *Neural Networks for Signal Processing VII. Proceedings of the 1997 IEEE Signal Processing Society Workshop*, pages 521–30. IEEE, New York, NY, USA.
- Satoshi, K., Nakamoto, T., and Moriizumi, T. (2000). Study of LSI circuit for learning and odor recognition using 1 bit data stream signal processing method. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-E*, 120:204–10.
- Sauvage, V. (1997). The T-SOM (Tree-SOM). In Sattar, A., editor, *Advanced Topics in Artificial Intelligence. 10th Australian Joint Conference on Artificial Intelligence, AI'97. Proceedings*, pages 389–97. Springer-Verlag, Berlin, Germany.
- Saveliev, A. A. and Dobrinin, D. V. (1999). Hierarchical multispectral image classification based on self organized maps. In *IEEE 1999 International Geoscience and Remote Sensing Symposium. IGARSS'99.*, volume 5, pages 2510–12, Piscataway, NJ. IEEE Service Center.
- Saxon, J. B. (1991). Simulating sensorimotor systems with cortical topology. Master's thesis, Texas A&M University, Computer Science Department, College Station, Texas.

- Sbarbaro, D. and Bassi, D. (1995). A nonlinear controller based on self-organizing maps. In *1995 IEEE International Conference on Systems, Man and Cybernetics. Intelligent Systems for the 21st Century*, volume 2, pages 1774–7, New York, NY, USA. Dept. de Ingegneria Electr. , Univ. de Concepcion, Chile, IEEE.
- Scabai, I., Czakó, F., and Fodor, Z. (1992). Combined neural network—QCD classifier for quark and gluon jet separation. *Nuclear Physics*, B374:288–308.
- Scaglione, L. J. (1994). Neural network application to particle impact noise detection. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 3415–3419, Piscataway, NJ. IEEE Service Center.
- Scheffer, C. and Heyns, P. S. (2001). Wear monitoring in turning operations using vibration and strain measurements. *Mechanical Systems and Signal Processing*, 15(6):1185–1202.
- Scherf, O., Pawelzik, K., and Geisel, T. (1995). From elastic net to SOFM: the energy function of the convolution model. In Fogelman-Soulé, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 39–43, Nanterre, France. EC2.
- Scherf, O., Pawelzik, K., Wolf, F., and Geisel, T. (1994). Unification of complementary feature map models. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume I, pages 338–341, London, UK. Springer.
- Scheunders, P. (2000a). Multiscale edge representation applied to image fusion. In *Proceedings-of-the-SPIE –The-International-Society-for-Optical-Engineering. vol.4119, pt.1–2*, volume 4119, pages 894–901.
- Scheunders, P. (2000b). Multispectral image fusion using local mapping techniques. In *Proceedings 15th International Conference on Pattern Recognition. ICPR-2000. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 2, pages 311–14.
- Scheunders, P. (2001). Local mapping for multispectral image visualization. *Image and Vision Computing*, 19(13):971–978.
- Schiel, F. (1993). A comparative study of speaker adaptation under realistic conditions. In *Proc. EUROSPEECH-93, 3rd European Conf. on Speech, Communication and Technology*, volume III, pages 2271–2274, Berlin, Germany. ESCA.
- Schikuta, E. and Weidmann, C. (1997). Data parallel simulation of self-organizing maps on hypercube architectures. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 142–147. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Schill, K., Baier, V., Rohrbein, F., and Brauer, W. (2001). A hierarchical network model for the analysis of human spatio-temporal information processing. In Rogowitz, B. E. and Pappas, T. N., editors, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4299, pages 615–621. Inst. fur Medizinische Psychologie, Ludwig-Maximilians-Universitat.
- Schizas, C. N., Pattichis, C. S., Livesay, R. R., Schofield, I. S., Lazarou, K. X., and Middleton, L. T. (1991). *Computer-Based Medical Systems*, chapter 9. 2, Unsupervised Learning in Computer Aided Macro Electromyography. IEEE Computer Soc. Press, Los Alamitos, CA.
- Schizas, C. N., Pattichis, C. S., and Middleton, L. T. (1992). A new approach to medical diagnosis. In Ulgen, Y., editor, *Proceedings of the 1992 International Biomedical Engineering Days*, pages 207–12, New York, NY, USA. Dept. of Comput Sci. , Cyprus Univ. , Nicosia, Cyprus, IEEE.
- Schlang, M. F., Tresp, V., Abraham-Fuchs, K., Härer, W., and Weismüller, P. (1992). Neural networks for segmentation and clustering of biomagnetic signals. In Kung, S. Y., Fallside, F., Sorenson, J. A., and Kamm, C. A., editors, *Neural Networks for Signal Processing II, Proc. of the 1992 IEEE-SP Workshop*, pages 343–349.

- Schmitt, B. and Duboeck, G. (1998). Differential patterns in consumer purchase preferences using self-organizing maps: A case study of China. In Deboeck, G. and Kohonen, T., editors, *Visual Explorations in Finance with Self-Organizing Maps*, pages 141–156. Springer, London.
- Schmitter, E. D. (1995). Neural nets—types, configurations and pitfalls. *Steel Research*, 66(10):444–448.
- Schmitz, G., Ermert, H., and Senge, T. (1994). Tissue characterization of the prostate using Kohonen-maps. In Levy, M., Schneider, S. C., and McAvoy, B. R., editors, *Proceedings of the 1994 IEEE Ultrasonics Symposium*, volume 3, pages 1487–90, New York, NY, USA. Inst. fur Hochfrequenztech. , Ruhr-Univ. , Bochum, Germany, IEEE.
- Schneider, G. (1998). Feature-extraction from endopeptidase cleavage sites in mitochondrial targeting peptides. *Proteins*, 30(1):49–50.
- Schneider, G. (2000). Neural networks are useful tools for drug design. *Neural Networks*, 13(1):15–16.
- Schnettler, A. and Kurrat, M. (1993). Partial discharge diagnosis using an artificial neural network. In *Proc. 8th Int. Symp. on High Voltage Engineering, Yokohama*, pages 57–60.
- Schnettler, A. and Tryba, V. (1993). Artificial self-organizing neural network for partial discharge source recognition. *Archiv für Elektrotechnik*, 76:149–154.
- Scholtes, J. (1992a). Neural data oriented parsing. In *Proc. 3rd Twente Workshop on Language Technology*, Twente, Netherlands. University of Twente.
- Scholtes, J. C. (1990). Trends in neurolinguistics. In *Proc. IEEE Symp. on Neural Networks, Delft, Netherlands, June 21st*, pages 69–86, Piscataway, NJ. IEEE Service Center.
- Scholtes, J. C. (1991a). Filtering the Pravda with a self-organizing neural net. In *Worknotes of the Bellcore Workshop on High Performance Information Filtering*, Chester, NJ. Bellcore.
- Scholtes, J. C. (1991b). Kohonen feature maps in full-text data bases: A case study of the 1987 Pravda. In *Proc. Informatiewetenschap 1991, Nijmegen*, pages 203–220, Nijmegen, Netherlands. STINFON.
- Scholtes, J. C. (1991c). Kohonen feature maps in natural language processing. Technical report, Department of Computational Linguistics, University of Amsterdam, Amsterdam, Netherlands.
- Scholtes, J. C. (1991d). Kohonen's self-organizing map applied towards natural language processing. In *Proc. CUNY 1991 Conf. on Sentence Processing, Rochester, NY, May 12–14*, page 10.
- Scholtes, J. C. (1991e). Kohonen's self-organizing map in natural language processing. In *Proc. SNN Symposium*, page 64, Nijmegen, Netherlands. STINFON.
- Scholtes, J. C. (1991f). Learning simple semantics by self-organization. In *Worknotes of the AAAI Spring Symp. Series on Machine Learning of Natural Language and Ontology, Palo Alto, CA, March 26–29*, pages 146–151. American Association for Artificial Intelligence.
- Scholtes, J. C. (1991g). Neural nets and their relevance for information retrieval. ITLI Prepublication Series for Computational Linguistics CL-91-02, University of Amsterdam, Amsterdam, Netherlands.
- Scholtes, J. C. (1991h). Recurrent Kohonen self-organization in natural language processing. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1751–1754, Amsterdam, Netherlands. North-Holland.
- Scholtes, J. C. (1991i). Self-organized language learning. In *The Annual Conf. on Cybernetics: Its Evolution and Its Praxis, Amherst, MA, July 17–21*.

- Scholtes, J. C. (1991j). Unsupervised context learning in natural language processing. In *Proc. IJCNN'91, International Conference on Neural Networks*, volume I, pages 107–112, Piscataway, NJ. IEEE Service Center.
- Scholtes, J. C. (1991k). Unsupervised learning and the information retrieval problem. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, volume I, pages 95–100, Piscataway, NJ. IEEE; Int. Neural Networks Soc, IEEE Service Center.
- Scholtes, J. C. (1991l). Using extended Kohonen-feature maps in a language acquisition model. In *Proc. 2nd Australian Conf. on Neural Nets*, pages 38–43, Sydney, Australia. University of Sydney.
- Scholtes, J. C. (1992b). Filtering the Pravda with a self-organizing neural net. In *Proc. Symp. on Document Analysis and Information Retrieval, Las Vegas, NV, March 16–18*, pages 151–161. UNLV Publ.
- Scholtes, J. C. (1992c). Filtering the Pravda with a self-organizing neural net. In *Proc. First SHOE Workshop, Tilburg, Netherlands, February 27–28*, pages 267–277.
- Scholtes, J. C. (1992d). Neural data oriented parsing. In *Proc. 2nd SNN, Nijmegen, The Netherlands, April 14–15*, page 86.
- Scholtes, J. C. (1992e). Neural nets for free-text information filtering. In *Proc. 3rd Australian Conf. on Neural Nets, Canberra, Australia, February 3–5*.
- Scholtes, J. C. (1992f). Neural nets in information retrieval. A case study of the 1987 Pravda. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1710(pt. 1):631–41.
- Scholtes, J. C. (1992g). Neural nets versus statistics in information retrieval. A case study of the 1987 Pravda. In *Proc. SPIE Conf. on Applications of Artificial Neural Networks III, Orlando, Florida, April 20–24*, Bellingham, WA. SPIE.
- Scholtes, J. C. (1992h). Resolving linguistic ambiguities with a neural data-oriented parsing (DOP) system. In *Proc. First SHOE Workshop*, pages 279–282, Tilburg, Netherlands. University of Tilburg.
- Scholtes, J. C. (1992i). Resolving linguistic ambiguities with a neural data-oriented parsing (DOP) system. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume II, pages 1347–1350, Amsterdam, Netherlands. North-Holland.
- Scholtes, J. C. (1993). *Neural Networks in Natural Language Processing and Information Retrieval*. PhD thesis, Universiteit van Amsterdam, Amsterdam, Netherlands.
- Scholtes, J. C. and Bloembergen, S. (1992a). Corpus based parsing with a self-organizing neural net. In *Proc. IJCNN-92-Beijing, International Joint Conference on Neural Networks*, Piscataway, NJ. IEEE Service Center.
- Scholtes, J. C. and Bloembergen, S. (1992b). The design of a neural data-oriented parsing (DOP) model. In *Proc. IJCNN-92-Baltimore, International Joint Conference on Neural Networks*, volume II, pages 69–72, Piscataway, NJ. IEEE Service Center.
- Schomaker, L. (1993). Using stroke-or character-based self-organizing maps in the recognition of on-line, connected cursive script. *Pattern Recognition*, 26(3):443–450.
- Schomaker, L., Abbink, G., and Selen, S. (1994). Writer and writing-style classification in the recognition of online handwriting. In *IEE European Workshop on Handwriting Analysis and Recognition: A European Perspective (Digest No. 1994/123)*, pages 1/1–4, London, UK. Inst. for Cognition & Inf. , Nijmegen Univ. , Netherlands, IEE.
- Schon, P. C., Puppe, B., and Manteuffel, G. (2000). Classification of stress calls of the domestic pig (*sus scrofa*) using LPC-analysis and a self organizing neuronal network. *ARCHIV FÜR TIERZUCHT-ARCHIVES OF ANIMAL BREEDING*, 43:177–183.

- Schon, P. C., Puppe, B., and Manteuffel, G. (2001). Linear prediction coding analysis and self-organizing feature map as tools to classify stress calls of domestic pigs (*sus scrofa*). *JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA*, 110(3):1425–1431.
- Schonweiler, R., Hess, M., Wubbelt, P., and Ptak, M. (2000a). Novel approach to acoustical voice analysis using artificial neural networks. *JARO*, 1(4):270–282.
- Schonweiler, R., Wubbelt, P., Tolloczko, R., Rose, C., and Ptak, M. (2000b). Classification of passive auditory event-related potentials using discriminant analysis and self-organizing feature maps. *AUDIOLOGY AND NEURO-OTOLOGY*, 5(2):69–82.
- Schoonees, J. A. (1988). Parallel distributed processing: practical applications of neural networks in signal processing. In *Proc. COMSIG'88, Southern African Conf. on Communications and Signal Processing*, pages 76–80, Piscataway, NJ. IEEE Service Center.
- Schouten, T. E., klein Gebbinck, M., Thijssen, J. M., and Verhoeven, J. T. M. (1993). Ultrasonic tissue characterisation using neural networks. In *Third International Conference on Artificial Neural Networks*, pages 110–2, London, UK. Dept. of Informatics, Katholieke Univ. , Nijmegen, Netherlands, IEE.
- Schuchhardt, J. (1996). Local structural motifs of protein backbones are classified by self-organizing neural networks. *Protein Engineering*, 9(10):833–842.
- Schuemeie, M. and van den Berg, J. (1999). Information retrieval systems using an associative conceptual space and self-organising maps. In *Accepted for presentation at the BNAIC'99 Conference, November 1999, Maastricht*.
- Schultz, A. (1993). Collective recall via the brain-state-in-a-box network. *IEEE Transactions on Neural Networks*, 4(4):580–587.
- Schumann, M. and Retzko, R. (1995a). Self organizing maps for vehicle routing problems - minimizing an explicit cost function. In Fogelman-Soulie, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 401–406, Nanterre, France. EC2.
- Schumann, M. and Retzko, R. (1995b). Solving vehicle routing problems with Self Organizing Maps. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 189–192. INNS.
- Schunemann, S. and Michaelis, B. (1996). A self-organizing map for analysis of high dimensional feature spaces with clusters of highly differing feature density. In Verleysen, M., editor, *4th European Symposium on Artificial Neural Networks, ESANN '96. Proceedings*, pages 79–84. D Facto, Brussels, Belgium.
- Schunemann, S. and Michaelis, B. (1998). Data analysis of not well separable clusters of different feature density with a two-layer classification system comprised of a SOM and an ART 2-A network. In *1998 IEEE International Joint Conference on Neural Networks Proceedings. IEEE World Congress on Computational Intelligence*, volume 1, pages 707–12. IEEE, New York, NY, USA.
- Schunemann, S. and Michaelis, B. (1999). A hierarchical self-organizing feature map for analysis of not well separable clusters of different feature density. In *7th European Symposium on Artificial Neural Networks. ESANN'99. Proceedings*, pages 13–18, Brussels, Belgium. D-Facto.
- Schunemann, S. and Michaelis, B. (2000). Special algorithms for analysis of clusters with different feature density using self-organizing maps. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. Otto von Guericke University of Magdeburg, Institute for Electronics, Signal Processing and Communications, ICSC Academic Press.

- Schunemann, S., Michaelis, B., and Schubert, W. (1996). Analysis of multi-fluorescence signals using a modified self-organizing feature map. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 575–80. Springer-Verlag, Berlin, Germany.
- Schunemann, S., Michaelis, B., and Schubert, W. (1998). Cluster analysis with SOFM for the detection of different diseases in the human immune system. In *6th European Congress on Intelligent Techniques and Soft Computing. EUFIT '98*, volume 2, pages 1320–4, Aachen, Germany. Verlag Mainz.
- Schünemann, S., Seiffert, U., and Michaelis, B. (1997). Two more modifications of SOMs to handle signals with special properties. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 292–297. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Schurer, T. (1994). Experimental comparison of different feature extraction and classification methods for telephone speech. *Proceedings of Second IEEE Workshop on Interactive Voice Technology for Telecommunications Applications*, pages 93–96.
- Schutte, F., Beineke, S., Grotstollen, H., Frohleke, N., Witkowski, U., Ruckert, U., and Ruping, S. (1997). Structure- and parameter identification for a two-mass system with backlash and friction using a self-organizing map. In *EPE'97. 7th European Conference on Power Electronics and Applications. EPE Assoc, Brussels, Belgium*, volume 3, pages 358–63.
- Schweigofer, E. and Merkl, D. (1999). Data mining in law with adaptive learning techniques. In *Proceedings. Tenth International Workshop on Database and Expert Systems Applications. DEXA 99*, pages 799–803, Los Alamitos, CA, USA. IEEE Computer Society.
- Schweizer, L., Parladori, G., and Sicuranza, G. L. (1992). Globally trained neural network architecture for image compression. In *Neural Networks for Signal Processing II. Proceedings of the IEEE-SP Workshop*, pages 289–95, New York, NY, USA. Alcatel Italia-Telettra Spa, Milano, Italy, IEEE.
- Schweizer, L., Parladori, G., Sicuranza, G. L., and Marsi, S. (1991). A fully neural approach to image compression. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume I, pages 815–820, Amsterdam. North-Holland.
- Schwenker, F., Kestler, H., and Palm, G. (1998). Adaptive clustering and multidimensional scaling of large and high-dimensional data sets. In *ICANN 98. Proceedings of the 8th International Conference on Artificial Neural Networks*, volume 2, pages 911–16, London, UK. Springer-Verlag London.
- Schwenker, F., Kestler, H. A., and Palm, G. (2000). Combination of supervised and unsupervised learning for radial-basis-function networks. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23–26, 2000 in Berlin, Germany*. University of Ulm, D-89069 Ulm, Germany, ICSC Academic Press.
- Schwenker, F., Kestler, H. A., and Palm, G. (2002a). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Unsupervised and Supervised Learning in Radial-Basis-Function Networks, pages 217–43. Physica-Verlag Heidelberg.
- Schwenker, F., Kestler, H. A., and Palm, G. (2002b). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Algorithms for the Visualization of Large and Multivariate Data Sets, pages 165–184. Physica-Verlag Heidelberg.
- Schwenker, F., Kestler, H. A., Palm, G., and Hoeher, M. (1994). Similarities of LVQ and RBF learning—a survey of learning rules and the application to the classification of signals from high-resolution electrocardiography. *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics.*, 1:646–651.

- Schyns, P. G. (1990a). Expertise acquisition through the refinement of conceptual representation in a self-organizing architecture. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, Washington, DC*, volume I, pages 236–239, Hillsdale, NJ. Lawrence Erlbaum.
- Schyns, P. G. (1990b). A modular neural network model of the acquisition of category names in children. In *Connectionist Models: Proc. of the 1990 Summer School*, pages 228–235, San Mateo, CA. Morgan-Kaufmann.
- Schyns, P. G. (1991). A modular neural network model of concept acquisition. *Cognitive Science*, 15:461–508.
- Searle, I., Ziola, S., and Rutherford, P. (1995). Crack detection in lap-joints using acoustic emission. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2444:212–23.
- See, N. G. and Yih, C. W. (1994). Isolated, speaker-independent spoken Chinese digits recognition using neural networks. In *Proceedings of the Second Singapore International Conference on Intelligent Systems. SPICIS '94*. Japan-Singapore AI Centre, Singapore.
- Sehad, S. and Touzet, C. (1994). Self-organizing map for reinforcement learning: obstacle-avoidance with Khepera. In Gaussier, P. and Nicoud, J. D., editors, *Proceedings. From Perception to Action Conference*, pages 420–3, Los Alamitos, CA, USA. LERI-EERIE, Nimes, France, IEEE Computer Society Press.
- Sehad, S. and Touzet, C. (1995). Neural reinforcement path planning for the miniature robot Khepera. In *Proc. WCNN'95, World Congress on Neural Networks*, volume II, pages 350–354. INNS.
- Seiffert, U. (2002). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Growing Multi-Dimensional Self-Organizing Maps for Motion Detection, pages 95–120. Physica-Verlag Heidelberg.
- Seiffert, U. and Jain, L. C., editors (2002). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*. Physica-Verlag Heidelberg.
- Seiffert, U. and Michaelis, B. (1995a). Classification of image properties for motion estimation with 3-dimensional self-organizing maps. In *Proc. SIP'95, International Conference on Signal and Image Processing*, pages 233–236. IASTED/Acta Press, Anaheim.
- Seiffert, U. and Michaelis, B. (1995b). Three-dimensional self-organizing maps for classification of image properties. In Kasabov, N. K. and Coghill, G., editors, *Proceedings of the Second New Zealand International Two-Stream Conference on Artificial Neural Networks and Expert Systems*, pages 310–13. IEEE Computer Society Press, Los Alamitos, CA, USA.
- Seiffert, U. and Michaelis, B. (1996a). Adaptive three-dimensional self-organizing map with two-dimensional input layer. In *Proc. ANZIIS '96, the Australian New Zealand Conference on Intelligent Information Systems*, pages 258–263. IEEE Press, Piscataway, NJ.
- Seiffert, U. and Michaelis, B. (1996b). Growing 3D-SOM's with 2D-input layer as a classification tool in a motion detection system. In Bulsari, A. B., editor, *Proc. EANN '96, International Conference on Engineering Applications of Neural Networks*, pages 351–354. Abo Akademis Tryckeri, Turku, Finland.
- Seiffert, U. and Michaelis, B. (1997a). Estimating motion parameters with three-dimensional self-organizing maps. *Information Sciences*, 101:187–201.
- Seiffert, U. and Michaelis, B. (1997b). Growing 3D-SOMs with 2D-input layer as a classification tool in a motion detection system. *International Journal of Neural Systems*, 8(1):81–9.
- Seiffert, U. and Michaelis, B. (1998). Quasi-four-dimensional-neuroncube and its application to motion estimation. In *Engineering Benefits from Neural Networks. Proceedings of the International Conference EANN '98*, pages 78–81. Systems Engineering Association, Turku, Finland.

- Seiffert, U. and Michaelis, B. (2001). Multi-dimensional self-organising maps on massively parallel hardware. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 160–6. Springer.
- Seki, I. and Hori, Y. (2002). Detection of abnormal action using image sequence for monitoring system of aged people. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-D*, 122:182–8.
- Selb, A. (2000). Comparison of vector quantization algorithms. *OEGAI-Journal*, 19:8–14.
- Selouani, S. A. and Caelen, J. (1999). A hybrid learning vector quantization/time-delay neural networks system for the recognition of arabic speech. In *Proceedings of the IEEE-EURASIP Workshop on Nonlinear Signal and Image Processing (NSIP'99)*. Bogazici Univ, Istanbul, Turkey, volume 2, pages 709–13.
- Selouani, S. A. and D., O. (2001). Hybrid architectures for complex phonetic features classification: a unified approach. In *Proceedings of the Sixth International Symposium on Signal Processing and its Applications*. IEEE, Piscataway, NJ, USA, volume 2, pages 719–22.
- Senju, T., Tamaki, Y., and Uezato, K. (2000). Next day load curve forecasting using self organizing map. In *PowerCon 2000. 2000 International Conference on Power System Technology. Proceedings*. IEEE, Piscataway, NJ, USA, volume 2, pages 1113–18.
- Seo, S. B., Kim, D., and Kang, D. S. (1999). VQ codebook design and feature extraction of image information for multimedia information searching. *Journal of the Institute of Electronics Engineers of Korea S*, 36:101–12.
- Seo, Y.-G. and Cho, S.-B. (2000). Self-organizing map for optimal audit data reduction in intrusion detection system. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 195–200.
- Sergi, R., Satalino, G., Solaiman, B., and Pasquariello, G. (1996). SIR-C polarimetric image segmentation by neural network. In Stein, T. I., editor, *IGARSS '96. 1996 International Geoscience and Remote Sensing Symposium. Remote Sensing for a Sustainable Future*, volume 3, pages 1562–4. IEEE, New York, NY, USA.
- Sergi, R., Solaiman, B., Mouchot, M. C., Pasquariello, G., and Posa, P. (1995). LANDSAT-TM image classification using principal components analysis and neural networks. In Stein, T. I., editor, *1995 International Geoscience and Remote Sensing Symposium, IGARSS '95. Quantitative Remote Sensing for Science and Applications*, volume 3, pages 1927–9, New York, NY, USA. Telecom Bretagne, Brest, France, IEEE.
- Serrano, C., Martín, B., and Gallizo, J. L. (1993). Artificial neural networks in financial statement analysis: Ratios versus accounting data. In *Proc. 16th Annual Congress of the European Accounting Association*. European Accounting Association.
- Serrano-Cinca, C. (1994). Beyond Z-analysis: Self-organizing neural networks for financial diagnosis. Discussion Papers in Accounting and Management Science 94–92, University of Southampton, Southampton, UK.
- Serrano-Cinca, C. (1996). Self organizing neural networks for financial diagnosis. *Decision Support Systems*, 17(3):227–238.
- Serrano-Cinca, C. (1998a). From financial information to strategic groups: A self-organizing neural network approach. *Journal of Forecasting*, 17.
- Serrano-Cinca, C. (1998b). Let financial data speak for themselves. In Deboeck, G. and Kohonen, T., editors, *Visual Explorations in Finance with Self-Organizing Maps*, pages 3–23. Springer, London.
- Severin, E. (2001). Ownership structure and the performance of firms: evidence from france. *European-Journal-of-Economic-and-Social-Systems*, 15:85–107.

- Sforna, M., Lamedica, R., Prudenzi, A., Caciotta, M., and Orsolini Cencelli, V. (1995). *Neutral network based technique for short-term forecasting of anomalous load periods*.
- Shah Hosseini, H. and Safabakhsh, R. (2000). Pattern classification by the time adaptive self-organizing map. In *ICECS 2000. 7th IEEE International Conference on Electronics, Circuits and Systems. IEEE, Piscataway, NJ, USA*, volume 1, pages 495–8.
- Shah-Hosseini, H. and Safabakhsh, R. (2001). TAPCA: time adaptive self-organizing maps for adaptive principal components analysis. In *Proceedings 2001 International Conference on Image Processing. IEEE, Piscataway, NJ, USA*, volume 1, pages 509–12.
- Shaikh, M. A., Tian, B., Azimi-Sadjadi, M. R., Eis, K. E., and VonderHaar, T. H. (1996). An automatic neural network-based cloud detection/classification scheme using multispectral and textural features. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2758:51–61. (Algorithms for Multispectral and Hyperspectral Imagery II Conf. Date: 9–11 April 1996 Conf. Loc: Orlando, FL, USA Conf. Sponsor: SPIE).
- Shalash, W. M. and Abou Chadi, F. (2000). A fingerprint classification technique using multilayer SOM. In *Proceedings of the Seventeenth National Radio Science Conference. 17th NRSC'2000. Minufiya Univ, Minufiya, Egypt*.
- Shan, L. (1991). Comparison of Kohonen feature map against K-mean clustering algorithm with application to reversible image compression. In *Proc. China 1991 International Conference on Circuits and Systems*, volume II, pages 808–811, Piscataway, NJ. IEEE; Shenzhen Univ. , China; CIE Circuits & Syst. Soc, IEEE Service Center.
- Shanmukh, K., Ganesh Murthy, C. N. S., and Venkatesh, Y. V. (1999). Applications of self-organization networks spatially SOM rphic to patterns. *Information Sciences*, 114:23–39.
- Shao, J. F. and Han, J. (2002). The application of SOM networks on rock blastability classification. In *Proceedings of the Annual Conference on Explosives and Blasting Technique*, volume I, pages 407–413. Lab. of Mechanics of Lille, Univ. of Sci. and Technol. of Lille, International Society of Explosives Engineers.
- Sharpe, P. K. and Caleb, P. (1998). Self organising maps for the investigation of clinical data: a case study. *Neural Computing & Applications*, 7(1):65–70.
- Shawkey, H., Elsimary, H., Haddara, H., and Ragaie, H. F. (1999). Design of a VLSI neural network arrhythmia classifier. In *Proceedings of the Sixteenth National Radio Science Conference. NRSC'99. Ain Shams Univ, Cairo, Egypt*.
- Shawkey, H., Elsimary, H., Ragaai, H., and Haddara, H. (1998). Low power VLSI neural network based arrhythmia classifier. *Proceedings of IEEE Symposium on Computer-based Medical Systems*, pages 282–288.
- Sheikhan, M., Tebyani, M., and Lotfizad, M. (1997). Continuous speech recognition and syntactic processing in IRanian farsi language. *International Journal of Speech Technology*, 1(2):135–41.
- Shen, C.-Y. and Pao, Y.-H. (1995). 'Let the data speak for themselves': A neural net computing approach to information management. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 142–145. INNS.
- Shen, T., Gan, J.-R., and Yao, L.-S. (1992a). Application of fuzzy neural computing for partitioning circuits. In *Proceedings of the IEEE 1992 Custom Integrated Circuits Conference*, pages 5. 3/1–4, New York, NY, USA. Shanghai Inst. of Metall. , Acad. Sinica, China, IEEE.
- Shen, T., Gan, J.-R., and Yao, L.-S. (1992b). Application of fuzzy neural computing in circuit partitioning. *Chinese J. Computers*, 15(9):641–647. (in Chinese).
- Shen, T., Gan, J.-R., and Yao, L.-S. (1992c). Application of self-organization neural network in VLSI placement. *Chinese J. Computers*, 15(9):648–654. (in Chinese).

- Shen, T., Gan, J.-R., and Yao, L.-S. (1992d). A generalized placement algorithm based on self-organization neural network. In *Proc. IJCNN'92, International Joint Conference on Neural Networks*, volume IV, pages 761–766, Piscataway, NJ. IEEE Service Center.
- Shen, T., Gan, J.-R., and Yao, L.-S. (1992e). A neural network approach to cell placement. *Acta Electronica Sinica*, 20(10):100–105. (in Chinese).
- Shen, T., Huang, S., Han, S., and Liu, D. (2001). Multi-type information fusion and state identification based SOFM. *Jixie Gongcheng Xuebao/Chinese Journal of Mechanical Engineering*, 37(1):37–41.
- Sheng, W., Rueda, J., and Blight, D. (1996). Neural network-based ATM QoS estimation. In Morris, A. J. and Martin, E. B., editors, *IEEE WESCANEX 97 Communications, Power and Computing. Conference Proceedings*, pages 1–6. Pergamon, Oxford, UK.
- Sheu, B. J., Choi, J., and Chang, C. F. (1992). An analog neural network processor for self-organizing mapping. In Wuorinen, J. H., editor, *1992 IEEE Int. Solid-State Circuits Conf. Digest of Technical Papers. 39th ISSCC*, pages 136–137, 266, Piscataway, NJ. IEEE Service Center.
- Shi, G.-R., Xing, Y., and Zhang, Y.-Q. (2001). Self-organizing feature map networks for segmentation of point-cloud. *Journal-of-Shanghai-Jiaotong-University*, 35:1093–6.
- Shibata, A. and Sakai, Y. (2000). Budgetary transfer processes: Equity versus efficiency. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 171–9.
- Shibata, A. and Sakai, Y. (2002). Budgetary transfer to local governments: equity, efficiency and political influence. *International-Journal-of-Knowledge-Based-Intelligent-Engineering-Systems*, 6:23–30.
- Shibata, T., Miyagi, K., Fujimura, K., and Tokutaka, H. (1999). Optimization of surface component mounting on the printed circuit board using SOM-TSP method. Technical report, IEICE. (in Japanese).
- Shieh, J. S., Linkens, D. A., and Peacock, J. E. (1999). Hierarchical rule based and self organizing fuzzy logic control for depth of anesthesia. *IEEE Transactions on Systems, Man and Cybernetics Part C: Applications and Reviews*, 29:98–109.
- Shihab, K. I. and Campbell, J. A. (1995). A conceptual clustering technique and its application to computer workload characterisation. In Forsyth, G. F. and Ali, M., editors, *Industrial and Engineering Applications of Artificial Intelligence and Expert Systems. Proceedings of the Eighth International Conference*, pages 289–94. Gordon & Breach, Newark, NJ, USA.
- Shihab, K. I. and Campbell, J. A. (1997). Workload characterisation based on AI techniques: a comparative study. In *Simulation in Industry. 9th European Simulation Symposium 1997. ESS'97. SCS, San Diego, CA, USA*, pages 567–70.
- Shihab, K. I. and Ramadhan, H. A. (2000). Clustering technique using dynamic filtering concepts and its application to computer workload modeling. *Journal of Intelligent Systems*, 10(4):321–344.
- Shin, H. W., Llobet, E., Gardner, J. W., Hines, E., and Dow, C. (2000). Classification of the strain and growth phase of cyanobacteria in potable water using an electronic nose system. *IEE Proceedings: Science, Measurement and Technology*, 147(4):158–164.
- Shin, Y. H. and Lu, C. C. (1991). Image compression using vector quantization and artificial neural networks. In *Conf. Proc. 1991 IEEE International Conference on Systems, Man, and Cyber. 'Decision Aiding for Complex Systems'*, volume III, pages 1487–1491, Piscataway, NJ. IEEE, IEEE Service Center.
- Shin, Y. H. and Lu, C.-C. (1992). Neural networks for classified vector quantization of images. *Proc. of the SPIE—The International Society for Optical Engineering*, 1657:100–105.

- Shinichi, Y., Shinji, D., and Shigeru, O. (1999). Deterministic annealing method with equidistortion principle for vector quantization. *Transactions of the Institute of Electrical Engineers of Japan, Part C*, 119:1010–17.
- Shirakura, J. and Kurata, K. (1998). Locking of self-organizing multiple maps by weak similarity of input information. *Transactions of the Institute of Electronics, Information and Communication Engineers*, J81D-II(10):2421–9.
- Shirakura, J. and Kurata, K. (2001). Nonlinear principal component analysis by learning nerve fields united by inhibitory connections. *Transactions-of-the-Institute-of-Electronics,-Information-and-Communication-Engineers-D-II*, pages 549–58.
- Shoukry, S. N., Martinelli, D., Varadarajan, S. T., and Halabe, U. B. (1996). Radar signal interpretation using neural network for defect detection in concrete. *Materials Evaluation*, 54(3):393–7.
- Shouno, H. and Kurata, K. (2001). Formation of a direction map by projection learning using kohonen's self-organization map. *BIOLOGICAL CYBERNETICS*, 85(4):241–246.
- Shu Yue, J., Tsang, E., Yeung, D., and Shi, D. (2000). Mining fuzzy association rules with weighted items. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 3, pages 1906–1911, Piscataway, NJ. Hong Kong Polytechnic Univ, IEEE.
- Shubnikov, E. I. (1997). The main models of neural networks. *Journal of Optical Technology*, 64(11):989–1003.
- Shumsky, S. (2001). Self-organising internet semantic network. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 61–66. Springer.
- Shumsky, S. A. (1999). Navigation in databases using self-organising maps. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 197–206. Elsevier, Amsterdam.
- Shumsky, S. A. and Yarovoy, A. V. (1997). Neural network analysis of Russian banks. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 351–355. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Shumsky, S. A. and Yarovoy, A. V. (1998). Self-organizing atlas of russian banks. In Deboeck, G. and Kohonen, T., editors, *Visual Explorations in Finance with Self-Organizing Maps*, pages 72–82. Springer, London.
- Shuono, H. and Kurata, K. (2001). Formation of a direction map by projection learning using kohonen's self-organization map. *Biological-Cybernetics*, 85:241–6.
- Shyamsunder, M. T., Rajagopalan, C., Raj, B., Dewangan, S. K., Rao, B. P. C., and Ray, K. K. (2000). Pattern recognition approaches for the detection and characterization of discontinuities by eddy current testing. *Materials Evaluation*, 58(1):93–101.
- Si, J., Lin, S., and Vuong, M. A. (2000). Dynamic topology representing networks. *Neural Networks*, 13(6):617–627.
- Si, J. and Rawat, B. S. (2000). New approach for virtual topology design in multihop lightwave networks. *Journal of Optical Communications*, 21(3):94–100.
- Sick, B. (1997). Classifying the wear of turning tools with neural networks. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 1059–64. Springer-Verlag, Berlin, Germany.
- Sieben, G., Vercauteren, L., Praet, M., Otte, G., Boullart, L., Calliauw, L., and Roels, L. (1992). The application of topological mapping in the study of human cerebral tumors. In Taylor, J. G. and Mannion, C. L. T., editors, *Theory and Applications of Neural Networks*, pages 121–124. Springer, London, UK.

- Siegel, B. K. and Keller, K. J. (1992). Pilot task monitoring using neural networks. In *Proceedings of the IEEE 1992 National Aerospace and Electronics Conference*, volume 2, pages 709–714, Dayton, OH. New York, Institute of Electrical and Electronics Engineers, Inc.
- Siemon, H. P. (1992). Selection of optimal parameters for Kohonen self-organizing feature maps. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume II, pages 1573–1577, Amsterdam, Netherlands. North-Holland.
- Siemon, H. P. and Ultsch, A. (1990). Kohonen networks on transputers: implementation and animation. In *Proc. INNC-90 Int. Neural Network Conf.*, pages 643–646, Dordrecht, Netherlands. Kluwer.
- Sien Tan, S., Srinivasan, D., Chang, C. S., Yi, M., and Chan, E. K. (1997). Cascaded neural networks for accurate short-term load forecasting. In Park, Y. M., Park, J. K., and Lee, K. Y., editors, *ISAP '97 International Conference on Intelligent System Application to Power Systems. Proceedings*, pages 357–61. Korean Inst. Electr. Eng, Seoul, South Korea.
- Silulwane, N. F., Richardson, A. J., Shillington, F. A., and Mitchell-Innes, B. A. (2001). Identification and classification of vertical chlorophyll patterns in the benguela upwelling system and angola-benguela front using an artificial neural network. *SOUTH AFRICAN JOURNAL OF MARINE SCIENCE-SUID-AFRIKAANSE TYDSKRIF VIR SEEWETENSKAP*, 23:37–51.
- Sim, H. and Damper, R. (1997). Two-dimensional object matching using Kohonen maps. In *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics*, volume 1, pages 620–25, Piscataway, NJ. Institute of Electrical and Electronics Engineers, Inc.
- Simelius, K., Reinhardt, L., Nenonen, J., Tierala, I., Toivonen, L., and Katila, T. (1997). Self-organizing maps in arrhythmia localization from body surface potential mapping. In *Proc. 19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Chicago*. IEEE Service Center, Piscataway, NJ.
- Simula, O., Ahola, J., Alhoniemi, E., Himberg, J., and Vesanto, J. (1999a). Self-organizing map in analysis of large-scale industrial systems. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 375–387. Elsevier, Amsterdam.
- Simula, O. and Alhoniemi, E. (1999). Som based analysis of pulping process data. In *Engineering Applications of Bio-Inspired Artificial Neural Networks. International Work-Conference on Artificial and Natural Neural Networks, IWANN'99. Proceedings, (Lecture Notes in Computer Science Vol.1607)*, volume 2, pages 567–77, Berlin, Germany. Springer-Verlag.
- Simula, O., Alhoniemi, E., Hollmén, J., and Vesanto, J. (1996). Monitoring and modeling of complex processes using hierarchical self-organizing maps. In *Proc. of 1996 IEEE International Symposium on Circuits and Systems (ISCAS-96)*, volume Supplement to vol. 4, pages 73–76.
- Simula, O., Alhoniemi, E., Hollmén, J., and Vesanto, J. (1997). Analysis of complex systems using the self-organizing map. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 1313–1317. Springer, Singapore.
- Simula, O., Hollmen, J., and Alhoniemi, E. (2002). Models from data: analysis of industrial processes and telecommunication systems. *Automazione-e-Strumentazione*, 50:107–13.
- Simula, O. and Kangas, J. (1995). *Neural Networks for Chemical Engineers*, volume 6 of *Computer-Aided Chemical Engineering*, chapter 14, Process monitoring and visualization using self-organizing maps. Elsevier, Amsterdam.
- Simula, O., Vasara, P., Vesanto, J., and Helminen, R.-R. (1999b). The self-organizing map in industry analysis. In Jain, L. and Vemuri, V., editors, *Intelligent Techniques in Industry.*, chapter 4, pages 87–112. CRC Press LLC.

- Simula, O., Vesanto, J., Alhoniemi, E., and Hollmén, J. (1999c). Analysis and modeling of complex systems using the self-organizing map. In Kasabov, N. and Kozma, R., editors, *Neuro-Fuzzy Techniques for Intelligent Information Systems*, pages 3–22. Physica-Verlag.
- Simula, O., Vesanto, J., and Vasara, P. (1998). Analysis of industrial systems using the self-organizing map. In *Proceedings of 1998 Second International Conference on Knowledge-Based Intelligent Engineering Systems (KES'98)*, pages 61–68. Adelaide, Australia.
- Simula, O. and Visa, A. (1992). Self-organizing feature maps in texture classification and segmentation. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks*, 2, volume II, pages 1621–1628, Amsterdam, Netherlands. North-Holland.
- Simula, O., Visa, A., and Valkealahti, K. (1993). Operational cloud classifier based on the topological feature map. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 899–902, London, UK. Springer.
- Sinesio, F., Di Natale, C., Quaglia, G. B., Bucarelli, F. M., Moneta, E., Macagnano, A., Paolesse, R., and D'Amico, A. (2000). Use of electronic nose and trained sensory panel in the evaluation of tomato quality. *JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE*, 80(1):63–71.
- Singer, A. (1990). Implementations of artificial neural networks on the connection machine. *Parallel Computing*, 14:305–315.
- Singh, K. M., Bora, P. K., and Mahanta, A. (2001). Features preserving filters using fuzzy kohonen clustering network in detection of impulse noise. In *Proceedings of IEEE Region 10 International Conference on Electrical and Electronic Technology. TENCON 2001. IEEE, Piscataway, NJ, USA*, volume 1, pages 420–3.
- Singh, R., Cherkassky, V., and Papanikolopoulos, N. (2000). Self-organizing maps for the skeletonization of sparse shapes. *IEEE Transactions on Neural Networks*, 11:241–8.
- Singh, R., Cherkassky, V., and Papanikolopoulos, N. P. (1996). Determining the skeletal description of sparse shapes. In Bunnell, H. T. and Idsardi, W., editors, *Proceedings. 1997 IEEE International Symposium on Computational Intelligence in Robotics and Automation CIRA'97. 'Towards New Computational Principles for Robotics and Automation'*, pages 368–73. IEEE, New York, NY, USA.
- Singh, R., Cherkassky, V., and Papanikolopoulos, N. P. (1997). Determining the skeletal description of sparse shapes. *Proc. IEEE International Symposium on Computational Intelligence in Robotics and Automation*, pages 368–373.
- Sinha, A. and Smith, A. D. (1999). Self-organizing map (SOM) of space acceleration measurement system (SAMS) data. *MICROGRAVITY SCIENCE AND TECHNOLOGY*, 12(2):78–87.
- Siponen, M., Vesanto, J., Simula, O., and Vasara, P. (2001). An approach to automated interpretation of SOM. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 89–94. Springer.
- Siqueira, M., Drehmer, G., and Navaux, P. (2000a). Fetal left atrium segmentation using kohonen maps to measure the septum primum redundancy index. In *Proceedings. Vol.1. Sixth Brazilian Symposium on Neural Networks. IEEE Comput. Soc, Los Alamitos, CA, USA*, page 287.
- Siqueira, M. L., Gasperin, C. V., Scharcanski, J., Zielinsky, P., and Navaux, P. O. A. (2000b). Echocardiographic image sequence segmentation using self-organizing maps. *Neural Networks for Signal Processing—Proceedings of the IEEE Workshop*, 2:594–603.
- Sirat, M. and Talbot, C. J. (2001). Application of artificial neural networks to fracture analysis at the aspo HRL, sweden: Fracture sets classification. *International Journal of Rock Mechanics and Mining Sciences*, 38(5):621–639.

- Sirisena, H. R. and Rule, G. L. (1996). Time optimal robot snatching control. In Mayorga, R. V., editor, *Proceedings of the Fourth IASTED International Conference Robotics and Manufacturing*, pages 227–31. IASTED-Acta Press, Anaheim, CA, USA.
- Sirosh, J. (1995). *A Self-Organizing Neural Network Model of the Primary Visual Cortex*. PhD thesis, The University of Texas at Austin, Austin, TX.
- Sirosh, J. and Miikkulainen, R. (1992). Self-organization with lateral connections. Technical Report AI92-191, The University of Texas at Austin, Austin, TX.
- Sirosh, J. and Miikkulainen, R. (1993). How lateral interaction develops in a self-organizing feature map. In *Proc. ICNN'93 International Conference on Neural Networks*, volume III, pages 1360–1365, Piscataway, NJ. IEEE, IEEE Service Center.
- Sirosh, J. and Miikkulainen, R. (1994a). Cooperative self-organization of afferent and lateral connections in cortical maps. *Biol. Cyb.*, 71:65–78.
- Sirosh, J. and Miikkulainen, R. (1994b). Self-organizing feature maps with lateral connections: Modeling ocular dominance. In Mozer, M. C., Smolensky, P., Touretzky, D. S., Elman, J. L., and Weigend, A. S., editors, *Proc. 1993 Connectionist Models Summer School*, pages 31–38, Hillsdale, NJ. Lawrence Erlbaum.
- Sirosh, J. and Miikkulainen, R. (1995a). Modeling cortical plasticity based on adapting lateral interaction. In Bower, J. M., editor, *Neurobiology of Computation. Proceedings of the Third Annual Computation and Neural Systems Conference*, pages 305–10. Kluwer Academic Publishers, Norwell, MA, USA.
- Sirosh, J. and Miikkulainen, R. (1995b). Ocular dominance and patterned lateral connections in a self-organizing model of the primary visual cortex. In Tesauro, G., Touretzky, D., and Leen, T., editors, *Advances in Neural Information Processing Systems*, volume 7, pages 109–116. The MIT Press.
- Sirosh, J. and Miikkulainen, R. (1995c). A unified neural network model for the self-organization of topographic receptive fields and lateral interaction. In Pearson, D. W., Steele, N. C., and Albrecht, R. F., editors, *Artificial Neural Nets and Genetic Algorithms: Proceedings of the International Conference in Ales, France (ICANNGA95)*, New York. Springer.
- Sirosh, J. and Miikkulainen, R. (1996a). Multisize receptive fields and lateral connections self-organize like ocular dominance and orientation columns in a Hebbian model of the visual cortex. In *Proceedings of the Eighteenth Annual Meeting of the Cognitive Science Society (COGSCI-96)*, pages 430–435, Hillsdale, NJ. Erlbaum.
- Sirosh, J. and Miikkulainen, R. (1996b). A neural network model of topographic reorganization following cortical lesions. In Witten, M., editor, *Computational Medicine, Public Health and Biotechnology: Building a Man in the Machine, Proceedings of the First World Congress*, Teaneck, NJ. World Scientific.
- Sirosh, J. and Miikkulainen, R. (1996c). Self-organization and functional role of lateral connections and multisize receptive fields in the primary visual cortex. *Neural Processing Letters*, 3(1):39–48.
- Sirosh, J. and Miikkulainen, R. (1997). Topographic receptive fields and patterned lateral interaction in a self-organizing model of the primary visual cortex. *Neural Computation*, 9(3):577–594.
- Sirosh, J., Miikkulainen, R., and Bednar, J. A. (1996). Self-organization of orientation maps, lateral connections, and dynamic receptive fields in the primary visual cortex. In Sirosh, J., Miikkulainen, R., and Choe, Y., editors, *Lateral Interactions in the Cortex: Structure and Function*, volume Electronic book <http://www.cs.utexas.edu/users/nn/web-pubs/htmlbook96>, pages 420–423. The UTCS Neural Networks Research Group, Austin, TX.
- Skinnemoen, H. (1993). *New Advances and Trends in Speech Recognition and Coding*, chapter MOR-VQ for Speech Coding over Noisy Channels. NATO ASI Series F. Springer-Verlag.

- Skinnemoen, H. (1994a). Combined source-channel coding with modulation organized vector quantization, MOR-VQ. In *Proc. IEEE GLOBECOM*, Piscataway, NJ. IEEE, IEEE Service Center.
- Skinnemoen, H. (1994b). Modulation organized vector quantization, MOR-VQ. In *Proc. ISIT'94 IEEE Int. Symp. on Inf. Theory*, page 238, Piscataway, NJ. IEEE, IEEE Service Center.
- Skinnemoen, H. (1994c). Robust communications with modulation organized vector quantization (MOR-VQ). In *Proc. NORSIG'94 Nordig Signal Processing Symposium*, pages 28–33, Piscataway, NJ. IEEE, IEEE Service Center.
- Skinnemoen, H. and Perkis, A. (1994). Efficient vector quantizations of LPC parameters for noisy channels. In *Proc. ICASSP'94 International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 497–500, Piscataway, NJ. IEEE, IEEE Service Center.
- Skinnemoen, P. H. (1994d). *Robust Communication with Modulation Organized Vector Quantization*. PhD thesis, The Norwegian Institute of Technology, Trondheim, Norway.
- Skitt, P. J. C., Javed, M. A., Sanders, S. A., and Higginson, A. M. (1993). Process monitoring using auto-associative, feed-forward artificial neural networks. *J. Intelligent Manufacturing*, 4(1):79–94.
- Skok, S. and Martsic, A. (2000). The self-organizing neural network applied to adaptive distance protection. In *2000 IEEE Power Engineering Society Winter Meeting. Conference Proceedings. IEEE, Piscataway, NJ, USA*, volume 3, pages 1956–60.
- Skok, S. and Marusic, A. (2000). Comparison of various neural network models applied to adaptive distance protection. In *DRPT2000. International Conference on Electric Utility Deregulation and Restructuring and Power Technologies. Proceedings. IEEE, Piscataway, NJ, USA*, pages 244–50.
- Skok, S. and Marusic, A. (2001a). Adaptive distance protection based on various neural network models. *Ciencia and Engenharia/ Science and Engineering Journal*, 10(2):39–46.
- Skok, S. and Marusic, A. (2001b). Distance protection of a double-circuit line based on kohonen neural network considering different operation modes. In *2001 IEEE Porto Power Tech Proceedings. IEEE, Piscataway, NJ, USA*, volume 4, page 5.
- Skubalska Rafajlowicz, E. (2000). One-dimensional kohonen LVQ nets for multidimensional pattern recognition. *International-Journal-of-Applied-Mathematics-and-Computer-Science*, 10:767–78.
- Smart, W. D. and Hallam, J. (1994). Location recognition with self-ordering networks. In *Proc. IMACS Int. Symp. on Signal Processing, Robotics and Neural Networks*, pages 449–453, Lille, France. IMACS.
- Smith, D. R. and Parziale, P. C. (1997). Surface control and vibration suppression of a large millimeter-wave telescope. *Optical Engineering*, 36(7):1837–42.
- Smith, K. (1995). Solving the generalised quadratic assignment problem using a self-organising process. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume IV, pages 1876–1879, Piscataway, NJ. IEEE Service Center.
- Smith, K., Palaniswami, M., and Krishnamoorthy, M. (1996). A hybrid neural approach to combinatorial optimization. *Computers & Operations Research*, 23(6):597–610.
- Smith, K., Palaniswami, M., and Krishnamoorthy, M. (1998). Neural techniques for combinatorial optimization with applications. *IEEE Transactions on Neural Networks*, 9:1301–1318.
- Smola, A. J., Mika, S., Scholkopf, B., and Williamson, R. C. (2001). Regularized principal manifolds. *Journal-of-Machine-Learning-Research*, 1:179–209.
- Smolander, S. and Lampinen, J. (1997). Determining the optimal structure for multilayer self-organizing map with genetic algorithm. In Parkkinen, J. and Visa, A., editors, *Proc. of the 10th Scandinavian Conference on Image Analysis*, volume 1, pages 411–417.

- Smolin, V. S. (1991). Monitoring of input signals subspace location in sensory space by neuronet inner layer neurons threshold value adaptation. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1337–1340, Amsterdam, Netherlands. North-Holland.
- Snyder, W., Nissman, D., Van den Bout, D., and Bilbro, G. (1991). Kohonen networks and clustering. In Lippmann, R. P., Moody, J. E., and Touretzky, D. S., editors, *Advances in Neural Information Processing Systems 3*, pages 984–991. Morgan Kaufmann, San Mateo, CA.
- So, P. and Liu, Z. Q. (1998). Adaptive subspace self-organising map for pattern recognition. In *IEEE ICIPS'98. Proceedings of the Second IEEE International Conference on Intelligent Processing Systems. IEEE, Piscataway, NJ, USA*, pages 149–53.
- So, Y. T. and Chan, K. P. (1994). Topological preserving network by the existence of lateral feedback. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 681–685, Piscataway, NJ. IEEE Service Center.
- Soffker, D. (2000). Human-machine interaction: modeling of individual planning, cognition, representation and action. In *7th IFAC Symposium on Automated Systems Based on Human Skill. Joint Design of Technology and Organisation. Preprints. VDI/VDE-GMA, Duesseldorf, Germany*, pages 123–6.
- Sohn, S. and Dagli, C. H. (2001a). Advantages of using fuzzy class memberships in self-organizing map and support vector machines. In *Proceedings of the International Joint Conference on Neural Networks*, volume 3, pages 1886–1890. Smart Engineering Systems Laboratory, Department of Engineering Management, University of Missouri-Rolla.
- Sohn, S. and Dagli, C. H. (2001b). Self-organizing map with fuzzy class memberships. In Priddy, K. L., Keller, P. E., and Angeline, P. J., editors, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4390, pages 150–157. Smart Engineering Systems Laboratory, Department of Engineering Management, University of Missouri.
- Solaiman, B. and Autret, Y. (1994). Application of the H LVQ neural network to hand-written digit recognition. In *Proc. NNSP'94, IEEE Workshop on Neural Networks for Signal Processing*, pages 384–393, Piscataway, NJ. IEEE, IEEE Service Center.
- Solaiman, B. and Maillard, E. P. (1995). Image compression using H LVQ neural network. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 5, pages 3447–50, New York, NY, USA. ENST de Bretagne, Brest, France, IEEE.
- Solaiman, B., Mouchot, M. C., and Maillard, E. (1994). A hybrid algorithm (H LVQ) combining unsupervised and supervised learning approaches. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 1772–1776, Piscataway, NJ. IEEE Service Center.
- Solaiman, B., Pyndiah, R., Aitsab, O., Cazuguel, G., and Roux, C. (1997). A hybrid fuzzy-neural approach for image compression/transmission over noisy channels. *ITG-Fachberichte*, 9(143):629–34. (Picture Coding Symposium. PCS 97 Conf. Date: 10–12 Sept. 1997 Conf. Loc: Berlin, Germany Conf. Sponsor: Deutsche Telekom Bergkom; Heinrich-Hertz-Inst).
- Soliman, H. (2001). Neural net simulation: SFSN model for image compression. In *Proceedings of the IEEE Annual Simulation Symposium*, pages 325–332.
- Soliman, H. and Abdelali, A. (2000). Colored image compression using neural networks. *Parallel and Distributed Computing and Systems. IASTED/ACTA Press, Anaheim, CA, USA; 2000; 2 vol*, 1:229–31.
- Somayajula, S. A. S., Sanchez-Sinencio, E., and Pineda de Gyvez, J. (1996). Analog fault diagnosis based on ramping power supply current signature clusters. *IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing*, 43(10):703–12.

- Somervuo, P. (1999a). Redundant hash addressing of feature sequences using the self-organizing map. *Neural Processing Letters*, 10(1):25–34.
- Somervuo, P. (1999b). Time topology for the self-organizing map. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1900–5, Piscataway, NJ. IEEE Service Center.
- Somervuo, P. (2000a). Competing hidden markov models on the self-organizing map. In *Proceedings of the International Joint Conference on Neural Networks*, volume 3, pages 169–174, Piscataway, NJ. Helsinki Univ of Technology, IEEE.
- Somervuo, P. (2000b). Self-organizing maps for signal and symbol sequences. *Acta-Polytechnica-Scandinavica,-Mathematics-and-Computing-Series. no.Ma107; 2000; p.2–45*, pages 2–45.
- Somervuo, P. and Kohonen, T. (1999). Self-organizing maps and learning vector quantization for feature sequences. *Neural Processing Letters*, 10(2):151–159.
- Somervuo, P. and Kohonen, T. (2000). Clustering and visualization of large protein sequence databases by means of an extension of the self-organizing map. In *Discovery Science. Third International Conference, DS 2000. Proceedings (Lecture Notes in Artificial Intelligence Vol.1967)*. Springer-Verlag, Berlin, Germany, pages 76–85.
- Sona, D., Sperduti, A., and Starita, A. (2000). Discriminant pattern recognition using transformation-invariant neurons. *NEURAL COMPUTATION*, 12(6):1355–1370.
- Song, H.-H. and Lee, S.-W. (1996). LVQ combined with simulated annealing for optimal design of large-set reference models. *Neural Networks*, 9(2):329–336.
- Song, H.-H. and Lee, S.-W. (1997). A self-organizing neural tree for large-set pattern classification. *Journal of KISS[B] [Software and Applications]*, 24(4):422–31.
- Song, H.-H. and Lee, S.-W. (1998). A self-organizing neural tree for large-set pattern classification. *IEEE Transactions on Neural Networks*, 9:369–380.
- Song, K.-T. and Sheen, L.-H. (2000). Heuristic fuzzy-neuro network and its application to reactive navigation of a mobile robot. *Fuzzy Sets and Systems*, 110(3):331–340.
- Song, W., Chang, S., and Shaowei, X. (1996a). A hybrid approach to unconstrained handwritten numerals recognition. In Yuan, B. and Tang, X., editors, *ICSP '96. 1996 3rd International Conference on Signal Processing Proceedings*, volume 2, pages 1334–7. IEEE, New York, NY, USA.
- Song, W., Feng, M., Shaowei, X., and Hui, S. (1997a). A fault tolerant Chinese bank check recognition system based on SOM neural networks. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume IV, pages 2560–2565. IEEE Service Center, Piscataway, NJ.
- Song, X. H. and Hopke, P. K. (1996). Kohonen neural-network as a pattern-recognition method. *Analytica Chimica Acta*, 334(1–2):57–66.
- Song, Y. H., Wan, H. B., and Johns, A. T. (1996b). Power system voltage stability assessment using a self-organizing neural network classifier. In *Fourth International Conference on Power System Control and Management*, pages 171–5. IEE, London, UK.
- Song, Y. H., Wan, H. B., and Johns, A. T. (1997b). Kohonen neural network based approach to voltage weak buses/areas identification. *IEE Proceedings-Generation, Transmission and Distribution*, 144(3):340–4.
- Song, Y. H., Xuan, Q. X., and Johns, A. T. (1997c). Comparison studies of five neural network based fault classifiers for complex transmission lines. *Electric Power Systems Research*, 43(2):125–32.

- Song, Y. H., Xuan, Q. Y., and Johns, A. T. (1996c). Comparison studies of five neural network based fault classifiers for complex transmission lines. In Malkinson, T. J., editor, *Proceedings of the 1996 Canadian Conference on Electrical and Computer Engineering. Theme: Glimpse into the 21st Century*, volume 2, pages 745–9. IEEE, New York, NY, USA.
- Sorhus, R. and Husoy, J. H. (1994). Image subband coding with spatially adaptive IIR filter banks: Automatic filter selection. In Holt, M. J. J., Cowan, C. F. N., Grant, P. M., and Sandham, W. A., editors, *Signal Processing VII, Theories and Applications. Proceedings of EUSIPCO-94. Seventh European Signal Processing Conference*, volume 2, pages 1230–3. Eur. Assoc. Signal Process, Lausanne, Switzerland.
- Soriano, M., Garcia, L., and Saloma, C. (2001). Fluorescent image classification by major color histograms and a neural network. *OPTICS EXPRESS*, 8(5):271–277.
- Sorsa, T. and Koivo, H. N. (1993). Application of artificial neural networks in process fault diagnosis. *Automatica*, 29(4):843–849.
- Sorsa, T., Koivo, H. N., and Koivisto, H. (1991). Neural networks in process fault diagnosis. *IEEE Trans. on Syst. , Man, and Cyb.*, 21(4):815–825.
- Sorsa, T., Koivo, H. N., and Korhonen, R. (1992). Application of neural network in the detection of breaks in a paper machine. In *Preprints of the IFAC Symp. on On-Line Fault Detection and Supervision in the Chemical Process Industries, Newark, Delaware, April 1992*, pages 162–167.
- Sotolongo Aguilar, G. and Guzman Sanchez, M. V. (2001). Application of neuronal networks. the case of bibliometrics. *Ciencias-de-la-Informacion*, 32:27–34.
- Souza, S. X., Doria Neto, A. D., Costa, J. A. F., and De Andrade Netto, M. L. (2001). A neural hybrid system for large memory association. In *Proceedings of the International Joint Conference on Neural Networks*, volume 2, pages 1174–1179. Univ. Federal do Rio Grande do Norte, Department of Electrical Engineering, Lab. of Computer Eng. and Automation.
- Soylu, M., Ozdemirel, N. E., and Kayaligil, S. (2000). Self-organizing neural network approach for the single AGV routing problem. *European Journal of Operational Research*, 121(1):124–137.
- Speckmann, H., Raddatz, G., and Rosenstiel, W. (1994a). Considerations of geometrical and fractal dimension of SOM to get better learning results. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume I, pages 342–345, London, UK. Springer.
- Speckmann, H., Raddatz, G., and Rosenstiel, W. (1994b). Improvement of learning results of the self-organizing map by calculating fractal dimensions. In Verleysen, M., editor, *Proc. ESANN'94, European Symp. on Artificial Neural Networks*, pages 251–255, Brussels, Belgium. D facto conference services.
- Speckmann, H., Thole, P., Bogdan, M., and Rosenstiel, W. (1994c). Coprocessors for special neural networks KOKOS and KOBOLD. In *Proc. WCNN'94, World Congress on Neural Networks*, volume II, pages 612–617, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Speckmann, H., Thole, P., Bogdan, M., and Rosentiel, W. (1994d). Coprocessor for special neural networks KOKOS and KOBOLD. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 1959–1962, Piscataway, NJ. IEEE Service Center.
- Speckmann, H., Thole, P., and Rosenstiel, W. (1993a). COKOS: A coprocessor for Kohonen Self-organizing map. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 1040–1044, London, UK. Springer.
- Speckmann, H., Thole, P., and Rosenstiel, W. (1993b). Coprocessor for kohonen's selforganizing map (cokos). *Proc. IJCNN'93, International Joint Conference on Neural Networks*, 2:1951–1954.

- Speckmann, H., Thole, P., and Rosentiel, W. (1992). Hardware implementations of Kohonen's self-organizing feature map. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks*, 2, volume II, pages 1451–1454, Amsterdam, Netherlands. North-Holland.
- Speckmann, H., Thole, P., and Rosentiel, W. (1993c). Hardware synthesis for neural networks from a behavioral description with VHDL. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1983–1986, Piscataway, NJ. JNNS, IEEE Service Center.
- Speidel, S. L. (1989). Signal phase pattern sensitive neural network system and method. U. S. Patent No. 5,146,541. This Government-owned invention available for U. S. licensing and, possibly, for foreign licensing. Copy of patent available Commissioner of Patents, Washington, DC 20231 \$1. 50.
- Speidel, S. L. (1991). Sonar scene analysis using neurobionic sound segregation. In *IEEE Conf. on Neural Networks for Ocean Engineering*, pages 77–90, Piscataway, NJ. IEEE, IEEE Service Center.
- Speidel, S. L. (1992). Neural adaptive sensory processing for undersea sonar. *IEEE J. Oceanic Engineering*, 17(4):341–350.
- Spencer, R. G., Lessard, C. S., Davila, F., and Etter, B. (1997). Self-organising discovery, recognition and prediction of haemodynamic patterns in the intensive care unit. *Medical & Biological Engineering & Computing*, 35(2):117–23.
- Spitzer, M. (1997). Noise-driven neuroplasticity in self-organizing feature maps: a neurocomputational model of phantom limbs. *M. D. Computing*, 14(3):192–9.
- Spitzer, M., Bohler, P., Weisbrod, M., and Kischka, U. (1995). A neural network model of phantom limbs. *Biological Cybernetics*, 72(3):197–206.
- Spitzer, M. and Neumann, M. (1996). Noise in models of neurological and psychiatric disorders. *International Journal of Neural Systems*, 7(4):355–61. (Workshop on the Role and Control of Random Events in Biological Systems Conf. Date: 4–9 Sept. 1995 Conf. Loc: Sigtuna, Sweden).
- Spitzner, A. and Polani, D. (1998). Order parameters for self-organizing maps. In *ICANN 98. Proceedings of the 8th International Conference on Artificial Neural Networks.*, volume 2, pages 517–22, London, UK. Springer-Verlag.
- Sprekelmeyer, U., Tenhagen, A., and Lippe, W.-M. (2000). Fuzzy kohonen classifier. In *IEEE International Conference on Fuzzy Systems*, volume 2, pages 572–576, Piscataway, NJ. Westfaelische Wilhelms-Universitaet Muenster, IEEE.
- Srikanth, R., Petry, F. E., and Koutsougeras, C. (1993). Fuzzy elastic clustering. In *Second IEEE International Conference on Fuzzy Systems*, volume 2, pages 1179–82, New York, NY, USA. Dept. of Comput. Sci. , Clark Atlanta Univ. , GA, USA, IEEE.
- Srinivasa, N. and Ahuja, N. (1999). Topological and temporal correlator network for spatiotemporal pattern learning, recognition, and recall. *IEEE Transactions on Neural Networks*, 10(2):356–371.
- Srinivasa, N. and Sharma, R. (1996). A self-organizing invertible map for active vision applications. In *WCNN'96. World Congress on Neural Networks. International Neural Network Society 1996 Annual Meeting*, pages 121–4. Lawrence Erlbaum Associates, Mahwah, NJ, USA.
- Srinivasa, N. and Sharma, R. (1997). Soim: A self-organizing invertible map with applications in active vision. *IEEE Transactions on Neural Networks*, 8(3):758–773.
- Srinivasan, D., Chang, C. S., and Tan, S. S. (1996). One-day ahead electric load forecasting with hybrid fuzzy-neural networks. In Smith, M. H., Lee, M. A., Keller, J., and Yen, J., editors, *1996 Biennial Conference of the North American Fuzzy Information Processing Society—NAFIPS*, pages 160–3. IEEE, New York, NY, USA.

- Srinivasan, D., Tan, S. S., Cheng, C. S., and Chan, E. K. (1999). Parallel neural network-fuzzy expert system strategy for short-term load forecasting: system implementation and performance evaluation. *IEEE Transactions on Power Systems*, 14:1100–6.
- Srinivasan, V., Yeo, S.-T., and Chaturvedi, P. (1994). Fringe processing and analysis with a neural network. *Optical Engineering*, 33(4):1166–71.
- Srivastava, L., Singh, S. N., and Sharma, J. (1998). Parallel self organizing hierarchical neural network based fast voltage estimation. *IEE Proceedings—Generation, Transmission and Distribution*, 145:98–104.
- Stacey, D. A., Kremer, S. C., and Dara, R. (2000). A SOM/MLP hybrid network that uses unlabeled data to improve classification performance. In *Smart Engineering System Design: Neural Networks, Fuzzy Logic, Evolutionary Programming, Data Mining, and Complex Systems. Vol.10. Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2000)*. ASME, New York, NY, USA, pages 179–84.
- Stankevicius, G. (2001). Forming of the investment portfolio using the self-organizing maps (SOM). *Informatica*, 12:573–84.
- Stanley, K., Wu, Q. M. J., W., d. C., and Gruver, W. A. (2001). Modular neural-visual servoing with image compression input. *Journal-of-Intelligent-&-Fuzzy-Systems*, 10:1–11.
- Steffens, J. and Kunze, M. (1995). Implementation of the supervised growing cell structure on the CNAPS neurocomputer. In Fogelman-Soulie, F. and Gallinari, P., editors, *ICANN '95. International Conference on Artificial Neural Networks. Neuronimes '95 Scientific Conference*, volume 2, pages 51–6, Paris, France. Inst. fur Experimentalphys. I, Ruhr-Univ. , Bochum, Germany, EC2 & Cie.
- Steinmetz, V., Rabatel, G., Crochon, M., Talou, T., and Bourrounet, B. (1995). Sensor fusion for quality grading of melons. In Baerdemaeker, J. D. and Vandewalle, J., editors, *Control Applications in Post-Harvest and Processing Technology (CAPPT '95). A Postprint Volume from the 1st IFAC/CIGR/EURAGENG/ISHS Workshop*, pages 201–7. Pergamon, Oxford, UK.
- Stephanidis, C. N., Cracknell, A. P., and Hayes, L. W. B. (1995). The implementation of self organised neural networks for cloud classification in digital satellite images. In Stein, T. I., editor, *1995 International Geoscience and Remote Sensing Symposium, IGARSS '95. Quantitative Remote Sensing for Science and Applications*, volume 1, pages 455–7, New York, NY, USA. Dept. of Appl. Phys. & Electron. & Manuf. Eng. , Dundee Univ. , UK, IEEE.
- Ster, B. and Dobnikar, A. (1996). Neural networks in medical diagnosis: comparison with other methods. In *Solving Engineering Problems with Neural Networks. Proceedings of the International Conference on Engineering Applications of Neural Networks (EANN'96)*. Syst. Eng. Assoc, Turku, Finland, volume 1, pages 427–30.
- Steuer, M., Caleb Solly, P., and Smith, J. (2001). An alternative approach for the evaluation of the neocognitron. In *9th European Symposium on Artificial Neural Networks. ESANN'2001. Proceedings. D-Facto, Evere, Belgium*, pages 125–30.
- Steven, G., Anguera, R., Egan, C., Steven, F., and L., V. (2001). Dynamic branch prediction using neural networks. In *Proceedings Euromicro Symposium on Digital Systems Design. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 178–85.
- Stevens, R. H., Wang, P., and Lopo, A. (1995). Exploring the medical novice-expert performance continuum with unsupervised artificial neural networks. In *Proc. WCNN'95, World Congress on Neural Networks*, volume II, pages 785–791. INNS.
- Stewart, C., Lu, Y. C., and Larson, V. (1994). Neural clustering approach for high resolution radar target classification. *Pattern Recognition*, 27(4):503–513.

- Stinely, M., Klinkhachorn, P., Nutter, R. S., and Kothari, R. (1993). Classification of chest radiographs for pneumoconiosis using Learning Vector Classification. In *Proc. WCNN'93, World Congress on Neural Networks*, volume I, pages 597–600, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Stocker, A., Sipila, O., Visa, A., Salonen, O., and Katila, T. (1996). Stability study of SOM neural networks applied to tissue characterization of brain magnetic resonance images. In *Proceedings of the 13th International Conference on Pattern Recognition*, volume 4, pages 472–6. IEEE Computer Society Press, Los Alamitos, CA, USA.
- Stowe, F. S. (1990). Speech recognition using Kohonen neural networks, dynamic programming and multi-feature fusion. Master's thesis, Air Force Inst. of Tech. , School of Engineering, Wright-Patterson AFB, OH.
- Strickert, M., Bojer, T., and Hammer, B. (2001). Generalized relevance LVQ for time series. In *ARTIFICIAL NEURAL NETWORKS-ICANN 2001, PROCEEDINGS*, pages 677–683.
- Stroud, R. R., Swallow, S., McCardle, J. R., and Burge, K. T. (1993). Controlling 1000 amps using neural networks. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1857–1860, Piscataway, NJ. JNNS, IEEE Service Center.
- Strouthopoulos, C. and Papamarkos, N. (1997). Document block identification using a neural network. *International Conference on Digital Signal Processing. DSP*, 2:999–1002.
- Strouthopoulos, C. and Papamarkos, N. (1998). Text identification for document image analysis using a neural network. *Image and Vision Computing*, 16(12):879–896.
- Strube, H. W. (1995). *Sprachverstehen in neuronaler Architektur (SPINA)*. Abschlussbericht. (Speech understanding in neural architecture (SPINA). Final report).
- Strupl, D. and Neruda, R. (1997). Parallelizing self-organizing maps. In Plasil, F. and Jeffery, K. G., editors, *SOFSEM '97: Theory and Practice of Informatics. 24th Seminar on Current Trends in Theory and Practice of Informatics. Proceedings*, pages 563–70. Springer-Verlag, Berlin, Germany.
- Su, B. and Jeng, S. K. (2001). Multi-timbre chord classification using wavelet transform and self-organized map neural networks. In *ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing—Proceedings*, volume 5, pages 3377–3380. Graduate Inst. of Communication Eng., Department of Electrical Engineering, National Taiwan University.
- Su, C.-T., Lii, G.-R., and Hwung, H.-R. (1997a). A neuro-fuzzy method for tracking control. In Bigun, J., Chollet, G., and Borgefors, G., editors, *Proceedings of the IEEE International Conference on Industrial Technology (ICIT'96)*, pages 682–6. Springer-Verlag, Berlin, Germany.
- Su, C. T., Yang, T., and Ke, C. M. (2002a). A neural-network approach for semiconductor wafer post-sawing inspection. *IEEE TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING*, 15(2):260–266.
- Su, M.-C. and Chang, H.-T. (1998). Genetic-algorithms-based approach to self-organizing feature map and its application in cluster analysis. In *1998 IEEE International Joint Conference on Neural Networks, Proceedings. IEEE World Congress on Computational Intelligence*, volume 1, pages 735–40. IEEE, New York, NY, USA.
- Su, M.-C. and Chang, H.-T. (1999). Self-organizing neural networks for data projection. In *5th International Computer Science Conference ICSC'99. Proceedings (Lecture Notes in Computer Science Vol. 1749)*. Springer-Verlag, Berlin, Germany, pages 206–15.
- Su, M.-C. and Chang, H.-T. (2000). Fast self-organizing feature map algorithm. *IEEE Transactions on Neural Networks*, 11(3):721–733.
- Su, M.-C. and Chang, H.-T. (2001). New model of self-organizing neural networks and its application in data projection. *IEEE Transactions on Neural Networks*, 12(1):153–158.

- Su, M.-C., Chou, C.-H., and Chang, H.-T. (2000a). Adding a healing mechanism in the self-organizing feature map algorithm. In *Proceedings of the International Joint Conference on Neural Networks*, volume 6, pages 171–176, Piscataway, NJ. Tamkang Univ, IEEE.
- Su, M.-C., Chou, C.-H., and Chang, H.-T. (2002b). A healing mechanism to improve the topological preserving property of feature maps. *IEICE Transactions on Information and Systems*, E85-D(4):735–743.
- Su, M. C., DeClaris, N., and Liu, T. K. (1997b). Application of neural networks in cluster analysis. *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics.*, 1:1–6.
- Su, M.-C., Lai, E., and Tew, C.-Y. (2000b). A SOM-based fuzzy system and its application in handwritten digit recognition. In *Proceedings International Symposium on Multimedia Software Engineering. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 253–8.
- Su, M. C. and Liu, I. C. (1999). Facial image morphing by self-organizing feature maps. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1969–72, Piscataway, NJ. IEEE Service Center.
- Su, M. C. and Liu, I. C. (2001). Application of the self-organizing feature map algorithm in facial image morphing. *Neural Processing Letters*, 14(1):35–47.
- Su, M. C., Liu, T. K., and Chang, H. T. (1999). An efficient initialization scheme for the self-organizing feature map algorithm. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1906–10, Piscataway, NJ. IEEE Service Center.
- Su, M.-C. and Tew, C.-Y. (2000). Self-organizing feature-map-based fuzzy system. In *Proceedings of the International Joint Conference on Neural Networks*, volume 5, pages 20–25, Piscataway, NJ. Tamkang Univ, IEEE.
- Su, M.-C., Tew, C.-Y., and Chen, H.-H. (2001). Musical symbol recognition using SOM-based fuzzy systems. In *Proceedings Joint 9th IFSA World Congress and 20th NAFIPS International Conference. IEEE, Piscataway, NJ, USA*, volume 4, pages 2150–3.
- Suchy, J. and Majlath, J. (1999). Application of self-organizing map to transformation of coordinates in robotics. In *IMEKO—XV. World Congress. Measurement to Improve the Quality of Life in the 2st Century—Measurement Helps to Coordinate Nature with Human Activities—Vol. X. TEG-17. ISMCR'99 Topical Workshop on Virtual Reality and Advanced Human-Robot Systems. IMEKO, Budapest, Hungary*, pages 277–82.
- Suetake, N., Nakamura, Y., and Yamakawa, T. (1999). Maximum entropy ICA constrained by individual entropy maximization employing self-organizing maps. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 2, pages 1038–42, Piscataway, NJ. IEEE Service Center.
- Suewatanakul, W. and Himmelblau, D. M. (1993). Comparison of artificial neural networks and traditional classifiers via the two-spiral problem. In *Proc. Third Workshop on Neural Networks: Academic/Industrial/NASA/Defense WNN92*, pages 275–282, San Diego, CA. Auburn Univ. ; Center Commercial Dev. Space Power and Adv. Electron. ; NASA, Soc. Comput. Simulation.
- Suganthan, P. N. (1997). Structure adaptive multilayer SOM with partial supervision for numeral recognition. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 1235–1238. Springer, Singapore.
- Suganthan, P. N. (1998). Hierarchical self organising maps. In *Proceedings of the Ninth Australian Conference on Neural Networks (ACNN'98). Univ. Queensland, Brisbane, Qld., Australia*, pages 255–9.
- Suganthan, P. N. (1999). Hierarchical overlapped som's for pattern classification. *IEEE Transactions on Neural Networks*, 10(1):193–196.

- Suganthan, P. N. (2001a). Pattern classification using multiple hierarchical overlapped self-organising maps. *Pattern Recognition*, 34(11):2173–2179.
- Suganthan, P. N. (2001b). SHAPESOM. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 110–7. Springer.
- Suh, S.-H. and Shin, Y.-S. (1996). Neural network modeling for tool path planning of the rough cut in complex pocket milling. *Journal of Manufacturing Systems*, 15(5):295–304.
- Sukhaswami, M. B. and Pujari, A. K. (1996). Restoration of geometrically aberrated images using a self-organising neural network. *Pattern Recognition Letters*, 17(1):1–10.
- Suksmono, A. B. and Hirose, A. (2000). Adaptive complex-amplitude texture classifier that deals with both height and reflectance for interferometric SAR images. *IEICE Transactions on Electronics*, E83-C(12):1912–1916.
- Suksmono, A. B., Karsa, K., Tjondronegoro, S., and Soegijoko, S. (1998a). Low bit rate image coding based on vector transformation with neural network approach. In *IEEE APCCAS 1998. 1998 IEEE Asia-Pacific Conference on Circuits and Systems. Microelectronics and Integrating Systems. Proceedings.*, pages 603–6, Piscataway, NJ. IEEE Service Center.
- Suksmono, A. B., Sastrokusumo, U., and Kondo, K. (1998b). Adaptive image coding based on vector quantization using SOFM-NN algorithm. In *IEEE APCCAS 1998. 1998 IEEE Asia-Pacific Conference on Circuits and Systems. Microelectronics and Integrating Systems. Proceedings.*, pages 443–6, Piscataway, NJ. IEEE Service Center.
- Suksmono, A. B., Sastrokusumo, U., Suryana, J., and E., P. B. (1999). Application of image coding system based on vector quantization using SOFM-NN algorithm for x-ray images. In *1999 IEEE International Symposium on Intelligent Signal Processing and Communication Systems. Signal Processing and Communications Beyond 2000. King Mongkuts Inst. Technol, Bangkok, Thailand*, pages 613–16.
- Sulaiman, M. N. and Evans, D. J. (1995). Using a general-purpose neural network simulation tool—NEUCOMP—for character recognition problems. *Journal of Microcomputer Applications*, 18(1):65–81.
- Sum, J. and Chan, L.-W. (1994a). Convergence of one-dimensional Self-Organizing Map. In *Proc. Int. Symp. on Speech, Image Processing and Neural Networks*, volume I, pages 81–84, Hong Kong. IEEE Hong Kong Chapt. of Signal Processing.
- Sum, J. and Chan, L.-W. (1994b). Fuzzy Self-Organizing Map. In *Proc. WCNN'94, World Congress on Neural Networks*, volume I, pages 732–737, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Sum, J. and Chan, L.-W. (1994c). Fuzzy self-organizing map: Mechanism and convergence. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 1674–1679, Piscataway, NJ. IEEE Service Center.
- Sum, J., sing Leung, C., wan Chan, L., and Xu, L. (1997). Yet another algorithm which can generate topography map. *IEEE Transactions on Neural Networks*, 8:1204–1207.
- Sumathi, S., Sivanandam, S. N., and Jagadeeswari (2000). Design of soft computing models for data mining applications. *Indian-Journal-of-Engineering-and-Materials-Sciences*, 7:107–21.
- Sun, H., Kaveh, M., and Tewfik, A. (1999). Self-organizing map neural network for transient signal classification in mechanical diagnostics. In *Proceedings of the IEEE-EURASIP Workshop on Nonlinear Signal and Image Processing (NSIP'99). Bogazici Univ, Istanbul, Turkey*, volume 2, pages 539–43.
- Sun, Y. (1996). On reconstruction error of Kohonen self-organizing mapping. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 1, pages 190–5. IEEE, New York, NY, USA.

- Sun, Y. (2000a). On quantization error of self-organizing map network. *NEUROCOMPUTING*, 34:169–193.
- Sun, Y. (2000b). On quantization error of self-organizing map network. *Neurocomputing*, 34:169–93.
- Sun, Y., Chan, K. L., Krishnan, S. M., and Dutt, D. N. (2000). Unsupervised classification of ECG beats using a MLVQ neural network. In Enderle, J., editor, *Annual International Conference of the IEEE Engineering in Medicine and Biology—Proceedings*, volume 2, pages 1387–1390. BMERC, School of EEE, Nanyang Technological University.
- Surakka, M. and Heikkonen, J. (1995). Road direction detection based on Gabor filters and neural networks. In Halme, A. and Koskinen, K., editors, *Intelligent Autonomous Vehicles 1995. Postprint Volume from the 2nd IFAC Conference*, pages 283–8, Oxford, UK. Machine Intelligence Div. , Mech. Eng. Lab. , Ibaraki, Japan, Pergamon.
- Surmann, H., Moller, B., and Goser, K. (1992). A distributed self-organizing fuzzy rule-based system. In *Fifth International Conference. Neural Networks and their Applications. NEURO NIMES 92*, pages 187–94, Nanterre, France. Dept. of Electr. Eng. , Dortmund Univ. , Germany, EC2.
- Süssner, M., Budil, M., Binder, T., and Porental, G. (1995). Segmentation and edge-detection of echocardiograms using artificial neuronal networks. In *Proc. EANN'95, Engineering Applications of Artificial Neural Networks*, pages 461–464. Finnish Artificial Intelligence Society.
- Sussner, P. (2000). Fixed points of autoassociative morphological memories. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. Institute of Mathematics, Statistics, and Scientific Computation, State University of Campinas, ICSC Academic Press.
- Sutton III, G. G., Reggia, J. A., Armentrout, S. L., and D'Autrechy, C. L. (1994). Cortical map reorganization as a competitive process. *Neural Computation*, 6(1):1–13.
- Suzuki, D. and Hammami, O. (1999). Som on multi-FPGA ISA board-hardware aspects. In *ICECS'99. Proceedings of ICECS '99. 6th IEEE International Conference on Electronics, Circuits and Systems.*, volume 3, pages 1401–5, Piscataway, NJ. IEEE Service Center.
- Swindale, N. V. (1992). Elastic nets, travelling salesmen and cortical maps. *Current Biology*, 2(8):429–431.
- Swindale, N. V. (1996a). The development of topography in the visual cortex: a review of models. *Network: Computation in Neural Systems*, 7:161–247.
- Swindale, N. V. (1996b). Visual cortex: Looking into a Klein bottle. *Current Biology*, 6(7):776–779.
- Swindale, N. V. (1998). Cortical organization: Modules, polymaps and mosaics. *Current Biology*, 8:R270–R273.
- Swindale, N. V. and Bauer, H. U. (1998). Application of Kohonen self organizing feature map algorithm to cortical maps of orientation and direction preference. *Proceedings of the Royal Society of London, Series B: Biological Sciences*, 265:827–838.
- Swiniarski, R. W. (2001). Rough sets methods in feature reduction and classification. *International-Journal-of-Applied-Mathematics-and-Computer-Science*, 11:565–82.
- Syed, A., ElMaraghy, H. A., and Chagneux, N. (1992). Real-time monitoring and diagnosing of robotic assembly with self-organizing neural maps. In *Real-Time Systems Symposium*, pages 271–4, Los Alamitos, CA, USA. Flexible Manuf. Centre, McMaster Univ. , Hamilton, Ont. , Canada, IEEE Computer Society Press.

- Syed, A., ElMaraghy, H. A., and Chagneux, N. (1993). Real-time monitoring and diagnosing of robotic assembly with self-organizing neural maps. In *Proceedings IEEE International Conference on Robotics and Automation*, volume 2, pages 188–95, Los Alamitos, CA, USA. Flexible Manuf. Centre, McMaster Univ. , Hamilton, Ont. , Canada, IEEE Computer Society Press.
- Sygnowski, W. and Macukow, B. (1996). Counter-propagation neural network for image compression. *Optical Engineering*, 35(8):2214–17.
- Syrjäsuo, M. T. and Pulkkinen, T. I. (1999). Determining the skeletons of the auroras. In *Proceedings 10th International Conference on Image Analysis and Processing*, pages 1063–6, Los Alamitos, CA, USA. IEEE Computer Society Press.
- Szabo, R. R. (2000). Study to evaluate the rough set theory and the learning vector quantization neural network paradigm using Bayesian probability theory. *International Journal of Smart Engineering System Design*, 2(3):201–227.
- Szczepaniak, P. S., Lisboa, P. J., and Ifeachor, E. C. (2000). Artificial neural networks in medicine—survey of applications. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. Institute of Computer Science, Technical University of Lodz; Systems Research Institute, Polish Academy of Sciences; Liverpool John Moores University; School of Electronics, Communication and Electrical Engineering, University of Plymouth, ICSC Academic Press.
- Szepesvári, C., Balázs, L., and Lőrincz, A. (1994a). Topology learning solved by extended objects: a neural network model. *Neural Computation*, 6:441–458.
- Szepesvári, C., Fomin, T., and Lőrincz, A. (1994b). Self-organizing neurocontrol. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1261–1264, London, UK. Springer.
- Szepesvári, C. and Lőrincz, A. (1993a). Topology learning solved by extended objects: A neural network model. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, page 678, London, UK. Springer.
- Szepesvári, C. and Lőrincz, A. (1993b). Topology learning solved by extended objects: A neural network model. In *Proc. WCNN'93, World Congress on Neural Networks*, volume II, pages 497–500, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Szepesvari, C. and Lorincz, A. (1996). Approximate geometry representations and sensory fusion. *Neurocomputing*, 12(2):267–287.
- Tabarabaei, V., Azimisadjadi, B., Zahirazami, S. B., and Lucas, C. (1994). Isolated word recognition using a hybrid neural network. In *ICASSP-94. 1994 IEEE International Conference on Acoustics, Speech and Signal Processing*, volume 2, pages II/649–52, New York, NY, USA. Electron. Res. Center, Sharif Univ. of Technol. , Tehran, Iran, IEEE.
- Tada, K. and Obu-Cann, K. (2000). SOM application to qualitative information analysis. In *6 th International Conference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 180–7.
- Tadj, C. and Poirier, F. (1993). Improved DVQ algorithm for speech recognition: A new adaptative learning rule with neurons annihilation. In *Proc. EUROSPEECH-93, 3rd European Conf. on Speech, Communication and Technology*, volume II, pages 1009–1012, Berlin, Germany. ESCA.
- Tadj, C. and Poirier, F. (1995). Keyword spotting using supervised/unsupervised competitive learning. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 1, pages 301–4, New York, NY, USA. Signal Dept. , Telecom Paris, France, IEEE.
- Tafeit, E. and Reibnegger, G. (1999). Artificial neural networks in laboratory medicine and medical outcome prediction. *CLINICAL CHEMISTRY AND LABORATORY MEDICINE*, 37(9):845–853.

- Tahani, H., Plummer, B., and Hemamalini, N. S. (1996). A new data reduction algorithm for pattern classification. In *1996 IEEE International Conference on Acoustics, Speech, and Signal Processing Conference Proceedings*, volume 6, pages 3446–9. IEEE, New York, NY, USA.
- Tai, W.-P. (1995). A batch training network for self-organization. In Fogelman-Soulie, F. and Galinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 33–37, Nanterre, France. EC2.
- Tai, W.-P. and Liou, C.-Y. (2000). Image representation by self-organizing conformal network. *Visual Computer*, 16(2):91–105.
- Taibi, G., Vassallo, G., and Sorbello, F. (1992). Self organizing maps for medical diagnosis. In Caianiello, E. R., editor, *Neural Nets WIRN Vietri 92—Proceedings of the 4th Italian Workshop on Neural Nets*, Singapore. Centro per la Ricerca Elettronica in Sicilia, Palermo, Italy, World Scientific.
- Takacs, B. and Wechsler, H. (1994). Locating facial features using SOFM. In *Proceedings of the 12th IAPR International Conference on Pattern Recognition*, volume 2, pages 55–60, Los Alamitos, CA, USA. Inst. for Comput. Sci. , George Mason Univ. , Fairfax, VA, USA, IEEE Computer Society Press.
- Takacs, B. and Wechsler, H. (1996). Visual filters for face recognition. In *Proceedings of the Second International Conference on Automatic Face and Gesture Recognition*, pages 218–23. IEEE Computer Society Press, Los Alamitos, CA, USA.
- Takacs, B. and Wechsler, H. (1997). Detection of faces and facial landmarks using iconic filter banks. *Pattern Recognition*, 30(10):1623–36.
- Takahashi, M., Hashimukai, H., and Ando, H. (1991). 2-dimensional color sensor with combined neural network. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, volume II, page 932, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.
- Takahashi, M., Kyuma, K., and Funada, E. (1993). 10000 cell placement optimization usin a self-organizing map. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2417–2420, Piscataway, NJ. JNNS, IEEE Service Center.
- Takatsuka, M. and Jarvis, R. A. (1995). Range image segmentation for 3D object recognition using hybrid neural networks. In Yao, X., editor, *Eighth Australian Joint Conference on Artificial Intelligence*, pages 235–42. World Scientific, Singapore.
- Takatsuka, M. and Jarvis, R. A. (2001). Encoding 3d structural information using multiple self-organizing feature maps. *IMAGE AND VISION COMPUTING*, 19(3):99–118.
- Takeda, T., Tanaka, A., and Tanno, K. (1993). Parallel computing algorithm of neural networks on an eight-neighbor processor array. In *Twelfth Annual International Phoenix Conference on Computers and Communications*, pages 559–64, New York, NY, USA. Dept. of Electr. & Inf. Eng. , Yamagata Univ. , Japan, IEEE.
- Tallam, R. M., Habetler, T. G., Harley, R. G., Gritter, D. J., and Burton, B. H. (2000). Neural network based on-line stator winding turn fault detection for induction motors. In *Conference Record—IAS Annual Meeting (IEEE Industry Applications Society)*, volume 1, pages 375–380, Piscataway, NJ. Georgia Inst of Technology, IEEE.
- Talumassawatdi, R. and Lursinsap, C. (2001). Fault immunization concept for self-organizing mapping neural networks. *International-Journal-of-Uncertainty,-Fuzziness-and-Knowledge-Based-Systems*, 9:781–90.
- Tamaru, Y., Mori, H., and Tsuzuki, S. (1993). Monitoring power system dynamic stability with a Kohonen neural net. *Electrical Engineering in Japan*, 113(6):71–80.

- Tamayo, P., Slonim, D., Mesirov, J., Zhu, Q., Kitareewan, S., Dmitrovsky, E., Lander, E. S., and Golub, T. R. (1999). Interpreting patterns of gene expression with self-organizing maps: Methods and application to hematopoietic differentiation. *Proceedings of the National Academy of Science, USA*, 96(6):2907–2912.
- Tambouratzis, G. (1993). Comparison of supervised and unsupervised discriminator-based logic neural networks. *Electronics Letters*, 30(3):248–249.
- Tambouratzis, G. (1994). Optimising the clustering performance of a self-organising logic neural network with topology-preserving capabilities. *Pattern Recognition Letters*, 15:1019–1028.
- Tambouratzis, G., Hairetakis, N., Markantonatou, S., and carayannis, G. (2001). Evaluating SOM-based models on text classification tasks for the greek language. In Allison, N., Yin, H., Allison, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 267–74. Springer.
- Tambouratzis, G., Papakonstantinou, G., Stamatopoulos, S., Zakopoulos, N., and Moulopoulos, S. (2002). Analyzing the 24-hour blood pressure and heart-rate variability with self-organizing feature maps. *International Journal of Intelligent Systems*, 17(1):63–76.
- Tambouratzis, G., Patel, D., and Stonham, T. J. (1993). Image segmentation using a self-organising logical neural networks. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 903–906, London, UK. Springer.
- Tambouratzis, G. and Stonham, T. J. (1993a). Evaluating the topology-preservation capabilities of a self-organising logical neural network. *Pattern Recognition Letters*, 14:927–934.
- Tambouratzis, G. and Stonham, T. J. (1993b). Optimal topology-preservation using self-organising logical neural networks. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 76–79, London, UK. Springer.
- Tambouratzis, G. and Tambouratzis, D. (1994). Self-organization in complex pattern spaces using a logic neural network. *Network: Computation in Neural Systems*, 5:599–617.
- Tamminen, S., Pirttiangas, S., and Roning, J. (2000). Self-organizing maps in adaptive health monitoring. In *Proceedings of the International Joint Conference on Neural Networks*, volume 4, pages 259–264, Piscataway, NJ. Univ of Oulu, IEEE.
- Tamura, H., Teraoka, T., Hatono, I., and Yamagata, K. (1991). A method of solving traveling salesman problems using a neural network-introducing the inhibitory signal into Kohonen's self-organizing feature maps. *Trans. Inst. of Systems, Control and Information Engineers*, 4(1):57–59. (in Japanese).
- Tan, R. S. and Narasimhan, V. L. (1998). Mapping finite element grids onto parallel multicomputers using a self-organizing map. In *IEE Proceedings: Computers and Digital Techniques*, volume 145, pages 211–214.
- Tanaka, M. (1995). Nonlinear system identification by the combination of self-organizing feature map and radial basis function network. In Isidori, A., Bittanti, S., Mosca, E., De Luca, A., Di Benedetto, M. D., and Oriolo, G., editors, *Proceedings of the Third European Control Conference. ECC 95*, volume 2, pages 1580–5. Eur. Union Control Assoc, Rome, Italy.
- Tanaka, M., Furukawa, Y., and Tanino, T. (1996a). Clustering by using self organizing map. *Transactions of the Institute of Electronics, Information and Communication Engineers*, J79D-II(2):301–4.
- Tanaka, M., Furukawa, Y., and Tanino, T. (1996b). Weight tuning and pattern classification by self organizing map using genetic algorithm. In *Proceedings of 1996 IEEE International Conference on Evolutionary Computation (ICEC'96)*, pages 602–5. IEEE, New York, NY, USA.
- Tanaka, M., Sakawa, H., Shiromaru, I., and Matsumoto, T. (1996c). A fault detection method by Kohonen's self-organizing map and backpropagation network using normal condition data. *Bulletin of the Faculty of Engineering, Hiroshima University*, 45(1):21–7.

- Tanaka, M., Sakawa, M., Shiromaru, I., and Matsumoto, T. (1995a). Application of Kohonen's self-organizing network to the diagnosis system for rotating machinery. In *1995 IEEE International Conference on Systems, Man and Cybernetics. Intelligent Systems for the 21st Century*, volume 5, pages 4039–44, New York, NY, USA. Fac. of Eng. , Hiroshima Univ. , Japan, IEEE.
- Tanaka, M., Watanabe, H., Furukawa, Y., and Tanino, T. (1995b). Ga-based decision support system for multicriteria optimization. In *1995 IEEE International Conference on Systems, Man and Cybernetics. Intelligent Systems for the 21st Century*, volume 2, pages 1556–61, New York, NY, USA. Dept. of Inf. Technol. , Okayama Univ. , Japan, IEEE.
- Tanaka, S. (1990). Experience-dependent self-organization of biological neural networks. *NEC Res. and Development*, 98:1–14.
- Tanaka, S.-I., Fujimura, K., Tokutaka, H., and Kishida, S. (1995c). A classifier using the Kohonen's self-organizing feature maps—applied to the system where the overlapped data are removed. Technical Report NC94–140, The Inst. of Electronics, Information and Communication Engineers, Tottori University, Koyama, Japan. (in Japanese).
- Tanaka, S.-I., Fujimura, K., Tokutaka, H., and Kishida, S. (1995d). The optimization of TSP using SOM method of many cities, for example 532 cities in USA. Technical Report NC95–70, The Inst. of Electronics, Information and Communication Engineers, Tottori University, Koyama, Japan. (in Japanese).
- Tanaka, T. (1994). On evaluation of reference vector density for self-organizing feature map. *IEICE Transactions on Information and Systems*, E77-D(4):402–8.
- Tanaka, T. and Saito, M. (1992). Quantitative properties of Kohonen's self-organizing maps as adaptive vector quantizers. *Trans. Inst. of Electronics, Information and Communication Engineers*, J75D-II(6):1085–1092. (in Japanese).
- Tanaka, T. and Saito, M. (1993). Quantitative properties of Kohonen's self-organizing maps as adaptive vector quantizers. *Systems and Computers in Japan*, 24(5):83–92.
- Taner, M. T., Berge, T., Walls, J. D., Smith, M., Taylor, G., Dumas, D., and Carr, M. (2001). Well log calibration of kohonen-classified seismic attributes using bayesian logic. *Journal of Petroleum Geology*, 24(4):405–416.
- Tang, H. (1998). *Applying Adaptive Techniques and Operations Research Methods to the Resource Management in Telecommunications*. PhD thesis, Helsinki University of Technology, Espoo, Finland.
- Tang, H. and Simula, O. (1996). The adaptive resource assignment and optimal utilization of multi-service SCP. In *4th International Conference on Intelligence in Networks, ICIN 96 Proceedings*, pages 235–40. ADERA, Pessac, France.
- Tang, X. (1996). *Transform Texture Classification*. Doctoral thesis.
- Tani, J. and Fukumura, N. (1993). Learning goal-directed navigation as attractor dynamics for a sensory motor system (an experiment by the mobile robot YAMABICO). In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1747–1752, Piscataway, NJ. JNNS, IEEE Service Center.
- Tani, J. and Fukumura, N. (1997). Self-organizing internal representation in learning of navigation: A physical experiment by the mobile robot YAMABICO. *Neural Networks*, 10:153–159.
- Tanomaru, J. and Inubushi, A. (1995a). A compact representation of binary patterns for invariant recognition. In *1995 IEEE International Conference on Systems, Man and Cybernetics. Intelligent Systems for the 21st Century*, volume 2, pages 1550–5, New York, NY, USA. Tokushima Univ. , Japan, IEEE.
- Tanomaru, J. and Inubushi, A. (1995b). A simple coding scheme for neural recognition of binary visual patterns. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume V, pages 2432–2437, Piscataway, NJ. IEEE Service Center.

- Tanomaru, J., Inubushi, A., and Ogura, K. (1995). Neural network system for invariant recognition of handwritten digits. In Louis, S., editor, *Proceedings of the ISCA International Conference, Fourth Golden West Conference on Intelligent Systems*, pages 214–18, Raleigh, NC, USA. Fac. of Eng. , Tokushima Univ. , Japan, Int. Soc. Comput. & Their Appl. -ISCA.
- Tao, S., Junren, G., and Linsheng, Y. (1992). A neural network approach to cell placement. *Acta Electronica Sinica*, 20(10):100–5.
- Taraglio, S. (1990). Boltzmann versus Kohonen networks, what is best for character recognition? In *Proc. INNC'90, Int. Neural Network Conf.*, volume I, page 103, Dordrecht, Netherlands. Thomsom; SUN; British Computer Society ; et al, Kluwer.
- Taraglio, S., Moronesi, S., Sargeni, A., and Meo, G. B. (1991). A Kohonen network for the recognition of underwater structures. In Caianiello, E. R., editor, *Fourth Italian Workshop. Parallel Architectures and Neural Networks*, pages 378–382, Singapore. Univ. Salerno; Inst. Italiano di Studi Filosofici, World Scientific.
- Tarr, G., Priddy, K., and Rogers, S. (1992). Neuralgraphics: a general purpose environment for neural network simulation. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 2):1047–56.
- Tarr, G. L. (1988). Dynamic analysis of feedforward neural networks using simulated and measured data. Master's thesis, Air Force Inst. of Tech., Wright-Patterson AFB, OH.
- Tavan, P., Grubmüller, H., and Kühnel, H. (1990). Self-organization of associative memory and pattern classification: recurrent signal processing on topological feature maps. *Biol. Cyb.*, 64(2):95–105.
- Tay, F. E. H. and Cao, L. J. (2001). Improved financial time series forecasting by combining support vector machines with self-organizing feature map. *Intelligent-Data-Analysis*, 5:339–54.
- Tay, L. P. and Evans, D. J. (1994). Fast learning artificial neural network (FLANN II) using the nearest neighbour recall. *Neural, Parallel & Scientific Computations*, 2(1):17–27.
- Taylor, J. G. and Mannion, C. L. T., editors (1989). *New Developments in Neural Computing. Proc. Meeting on Neural Computing*, Bristol, UK. Adam Hilger.
- Taylor, O., Tait, J., and J., M. (1999). Improved classification for a data fusing kohonen self organizing map using a dynamic thresholding technique. In *IJCAI-99. Proceedings of the Sixteenth International Joint Conference on Artificial Intelligence. Morgan Kaufmann Publishers, San Francisco, CA, USA*, volume 2, pages 828–32.
- Tebbe, D. L., Billhartz, T. J., Doner, J. R., and Kraft, T. T. (1995). Signal processing and neural network simulator. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2492(pt. 1):42–50.
- Tellechea, M. and Grana, M. (2001). On the application of competitive neural networks for unsupervised analysis of hyperspectral remote sensing images. In Serpico, S. B., editor, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4170, pages 65–72.
- Teng, C. (1990). A self-organizing ANN-implemented model for invariant image understanding. In Hamza, M. H., editor, *Proc. Second IASTED International Symposium. Expert Systems and Neural Networks*, pages 35–39, Anaheim, CA. IASTED, Acta Press.
- Teng, C. and Ligomenides, P. A. (1991). An ANN-implemented robust vision model. *Proc. SPIE—The International Society for Optical Engineering*, 1382:74–86.
- Tenhagen, A., Sprekelmeyer, U., and Lippe, W.-M. (2000). Analysis of a fuzzified self-organizing map's output behaviour. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 251–56.

- Tenhagen, A., Sprekelmeyer, U., and Lippe, W. M. (2001). On the combination of fuzzy logic and kohonen nets. In *Proceedings Joint 9th IFSA World Congress and 20th NAFIPS International Conference. IEEE, Piscataway, NJ, USA*, volume 4, pages 2144–9.
- Teoh, C. C., Mansor, S. B., Mispan, M. R., Mohamed Shariff, A., and Ahmad, N. (2001). Extraction of infrastructure details from fused image. In *International Geoscience and Remote Sensing Symposium (IGARSS)*, volume 3, pages 1490–1492. GISAT, Faculty of Engineering, University Putra Malaysia, Institute of Electrical and Electronics Engineers Inc.
- Teranishi, M., Omatsu, S., and Kosaka, T. (2000). Classification of bill fatigue levels by feature-selected acoustic energy pattern using competitive neural network. In *Proceedings of the International Joint Conference on Neural Networks*, volume 6, pages 249–252, Piscataway, NJ. Nara Natl Coll of Technology, IEEE.
- Terashima, M., Shiratani, F., Hashimoto, T., and Yamamoto, K. (1996a). A normalization method of input data that conserves the norm information for competitive learning neural network using inner product. *Optical Review*, 3(6A):414–17.
- Terashima, M., Shiratani, F., and Yamamoto, K. (1996b). Unsupervised cluster segmentation method using data density histogram on self-organizing feature map. *Transactions of the Institute of Electronics, Information and Communication Engineers*, J79D-II(7):1280–90.
- Terekhoff, S. A. (1995). Experimental data analysis by neural nonparametric methods. In *Second International Symposium on Neuroinformatics and Neurocomputers*, pages 337–45, New York, NY, USA. Federal Nucl. Center, All Russian Inst. of Tech. Phys. , Snezhinsk, Russia, IEEE.
- Terekhoff, S. A. (1997). Direct, inverse, and combined problems in complex engineered system modeling by artificial neural networks. *Proceedings of the SPIE—The International Society for Optical Engineering*, 3077:652–9. (Applications and Science of Artificial Neural Networks III Conf. Date: 21–24 April 1997 Conf. Loc: Orlando, FL, USA Conf. Sponsor: SPIE).
- Tereshko, V. (2001). Topology-preserving elastic nets. In *Connectionist Models of Neurons, Learning Processes, and Artificial Intelligence. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part I (Lecture Notes in Computer Science Vol. 2084)*. Springer-Verlag, Berlin, Germany, pages 554–60.
- Terra, M. H. and Tinos, R. (2001). Fault detection and isolation in robotic manipulators via neural networks: A comparison among three architectures for residual analysis. *Journal of Robotic Systems*, 18(7):357–374.
- Tetko, I. V., Kovalishyn, V. V., and Livingstone, D. J. (2001). Volume learning algorithm artificial neural networks for 3d QSAR studies. *JOURNAL OF MEDICINAL CHEMISTRY*, 44(15):2411–2420.
- Teucci, C. M., Marchesi, C., and Carpeggiani, C. (1998). Comparing symbolic to connectionist knowledge representation in the design of a patient record for cardiology. In *Proceedings on the Third International Conference on Neural Networks and Expert Systems in Medicine Healthcare*, pages 271–8, Singapore. World Scientific Publishing.
- Teucci, M. C., Braccini, G., Carpeggiani, C., and Marchesi, C. (1997). An application of self-organising maps for a knowledge base for use in cardiac domain. In *Computers in Cardiology 1997*, pages 569–72. IEEE, New York, NY, USA.
- Textor, W., Wessel, S., and Hoffgen, K. U. (1992). Learning fuzzy rules from artificial neural nets. In Dewilde, P. and Vandewalle, J., editors, *CompEuro 1992 Proceedings. Computer Systems and Software Engineering*, pages 121–6, Los Alamitos, CA, USA. Lehrstuhl Inf. II, Dortmund Univ. , Germany, IEEE Computer Society Press.
- Thang, K. F., Aggarwal, R. K., Esp, D. G., and McGrail, A. (2000). Statistical and neural network analysis of dissolved gases in power transformers. In *IEE Conference Publication*, pages 324–329, Stevenage. Univ of Bath, IEE.

- Thangavelu, A. V., Moyer, H. P., Ghanevati, M., Daryoush, A. S., and Gutierrez, R. (1997). Push-pull frequency converter for mobile communication. In Koepf, G. A., editor, *1997 IEEE MTT-S International Microwave Symposium Digest*, volume 2, pages 661–4. IEEE, New York, NY, USA.
- Theodoropoulos, G., Loumos, V., Anagnostopoulos, C., Kayafas, E., and Martinez Gonzales, B. (2000). Digital image analysis and neural network based system for identification of third-stage parasitic strongyle larvae from domestic animals. *Computer Methods and Programs in Biomedicine*, 62(2):69–76.
- Thian, T. S. and Yen, T. W. (1999). Illumination-sensitive failure mechanism—a case study on transient I/sub cc/ failure. In *Proceedings of the 1999 7th International Symposium on the Physical and Failure Analysis of Integrated Circuits.*, pages 73–6, Piscataway, NJ. IEEE Service Center.
- Thiran, J. P., Macq, B., and Mairesse, J. (1994a). Morphological classification of cancerous cells. In *Proceedings ICIP-94*, volume 3, pages 706–10, Los Alamitos, CA, USA. Lab. de Telecommun. et Teledetection, Univ. Catholique de Louvain, Belgium, IEEE Computer Society Press.
- Thiran, P. (1993). Self-organization on a Kohonen network with quantized weights and an arbitrary one-dimensional stimuli distribution. In Verleysen, M., editor, *Proc. ESANN'95, European Symposium on Artificial Neural Networks*, pages 203–208, Brussels, Belgium. D Facto.
- Thiran, P. (1997). *Dynamics and Self-organization of Locally Coupled Neural Networks*. Presses Polytechniques et Universitaires Romandes, Lausanne, Switzerland.
- Thiran, P. (1998). Self-organization in cellular neural networks: a comparison with Kohonen's self-organizing maps. In Tavsanoglu, V., editor, *1998 Fifth IEEE International Workshop on Cellular Neural Networks and their Applications. Proceedings*, pages 68–73. IEEE, New York, NY, USA.
- Thiran, P. (1999). Kohonen self-organizing map with quantized weights. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 145–156. Elsevier, Amsterdam.
- Thiran, P. and Hasler, M. (1992a). Quantization effects in Kohonen networks. In Cottrell, M. and Chaleyat-Maurel, M., editors, *Proc. workshop ‘Aspects Theoriques des Reseaux de Neurones’*, Paris, France. Université Paris I.
- Thiran, P. and Hasler, M. (1992b). Réseau de Kohonen avec poids synaptiques quantifiés. In Cottrell, M. and Chaleyat-Maurel, M., editors, *Proc. Workshop ‘Aspects Theoriques des Reseaux de Neurones’*, Paris, France. Université Paris I.
- Thiran, P. and Hasler, M. (1994). Self-organization of a one-dimensional Kohonen network with quantized weights and inputs. *Neural Networks*, 7(9):1427–39.
- Thiran, P. and Hasler, M. (1995). Study of the Kohonen network with a discrete state space. *Mathematics and Computers in Simulation*, 38(1–3):189–97.
- Thiran, P., Peiris, V., Heim, P., and Hochet, B. (1994b). Quantization effects in digitally behaving circuit implementations of Kohonen networks. *IEEE Transactions on Neural Networks*, 5(3):450–8.
- Thissen, P., Verleysen, M., Legat, J. D., Madrenas, J., and Dominguez, J. (1995). A VLSI system for neural Bayesian and LVQ classification. In Mira, J. and Sandoval, F., editors, *From Natural to Artificial Neural Computation. International Workshop on Artificial Neural Networks. Proceedings*, pages 696–703. Springer-Verlag, Berlin, Germany.
- Thomas, E., Van Hulle, M. M., and Vogels, R. (2001). Encoding of categories by noncategory-specific neurons in the inferior temporal cortex. *JOURNAL OF COGNITIVE NEUROSCIENCE*, 13(2):190–200.

- Thompson, B. T. (1999). Application of fuzzy logic to feature extraction from images of agricultural material. In *Proceedings-of-the-SPIE -The-International-Society-for-Optical-Engineering. vol.3812*, volume 3812, pages 241–50.
- Thouard, J. P., Depalle, P., and Rodet, X. (1990). Pitch classification of musical notes using Kohonen's self-organizing feature map. In *Proc. INNC'90, Int. Neural Network Conf.*, volume I, page 196, Dordrecht, Netherlands. Thomsom; SUN; British Computer Society ; et al, Kluwer.
- Thuillard, M. (1996). The development of algorithms for a smoke detector with neuro-fuzzy logic. *Fuzzy Sets and Systems*, 77(2):117–24.
- Thursby, M. H., Fausett, L. V., and Kwon, H. (1994). Rotation invariant classification of chromosomes using LVQ and ARTMAP. In Dagli, C. H., Fernandez, B. R., Ghosh, J., and Kumara, R. T. S., editors, *Intelligent Engineering Systems Through Artificial Neural Networks*, volume 4, pages 385–90. ASME, New York, NY, USA.
- Thyagarajan, K. S. and Eghbalmoghadam, A. (1990). Design of a vector quantizer using a neural network. *Archiv für Elektronik und Übertragungstechnik*, 44(6):439–444. (in English).
- Thyagarajan, K. S. and Erickson, D. (1994). Variable rate self organizing neural networks for video compression. In Singh, A., editor, *Conference Record of the Twenty-Eighth Asilomar Conference on Signals, Systems and Computers*, volume 1, pages 244–8, Los Alamitos, CA, USA. Dept. of Electr. & Comput. Eng. , San Diego State Univ. , CA, USA, IEEE Computer Society Press.
- Thyssen, J. and Hansen, S. D. (1993). Using neural networks for vector quatization in low rate speech coders. In *Proc. ICASSP-93, International Conference on Acoustics, Speech and Signal Processing*, volume II, pages 431–434, Piscataway, NJ. IEEE, IEEE Service Center.
- Tian, B., Azimi Sadjadi, M. R., Haar, T. H. V., and Reinke, D. (1997). Neural network-based cloud classification on satellite imagery using textural features. *IEEE International Conference on Image Processing*, 3:209–212.
- Tian, B., Azimi-Sadjadi, M. R., Shaikh, M. A., and Vonder-Haar, T. (1996). An FFT-based algorithm for computation of Gabor transform with its application to cloud detection/classification. In Stein, T. I., editor, *IGARSS '96. 1996 International Geoscience and Remote Sensing Symposium. Remote Sensing for a Sustainable Future*, volume 2, pages 1108–10. IEEE, New York, NY, USA.
- Tian, B., Shaikh, M. A., Azimi Sadjadi, M. R., Vonder Haar, T. H., and Reinke, D. L. (1999). Study of cloud classification with neural networks using spectral and textural features. *IEEE Transactions on Neural Networks*, 10(1):138–151.
- Tianren, Y. and Dayou, W. (1992). On the use of cluster structure of self-organizing feature mapping nets to fast-search in VQ of speech. In *ICCT '92. Proceedings of 1992 International Conference on Communication Technology*, volume 2, pages 34. 04/1–5, Beijing, China. Huazhong Univ. of Sci. & Technol. , Wuhan, China, Int. Acad. Publishers.
- Tillmann, B., Bharucha, J. J., and Bigand, E. (2000). Implicit learning of tonality: A self-organizing approach. *Psychological Review*, 107(4):885–913.
- Tin, S. and Erkmen, I. (1995). Short-term load forecasting using unsupervised/supervised cascaded artificial neural networks. In *Stockholm Power Tech International Symposium on Electric Power Engineering*, volume 5, pages 564–9. IEEE, New York, NY, USA.
- Tino, P. and Nabney, I. (2002). Hierarchical GTM: constructing localized nonlinear projection manifolds in a principled way. *IEEE-Transactions-on-Pattern-Analysis-and-Machine-Intelligence*, 24:639–56.
- Tino, P., Nabney, I., and Sun, Y. (2001). Using directional curvatures to visualize folding patterns of the GTM projection manifolds. In *Artificial Neural Networks—ICANN 2001. International Conference. Proceedings (Lecture Notes in Computer Science Vol.2130)*. Springer-Verlag, Berlin, Germany, pages 421–8.

- Tino, P. and Sajda, J. (1995). Learning and extracting initial mealy automata with a modular neural network model. *Neural Computation*, 7(4):822–44.
- Tinos, R. and Terra, M. H. (1998). Fault detection and isolation in robotic manipulators and the radial basis function network trained by the Kohonen's self-organizing map. In de Padua Braga, A. and Ludermir, T. B., editors, *Proceedings 5th Brazilian Symposium on Neural Networks*, pages 85–90. IEEE Computer Society, Los Alamitos, CA, USA.
- Tinos, R. and Terra, M. H. (2001). Fault detection and isolation in robotic manipulators using a multilayer perceptron and a RBF network trained by the kohonen's self-organizing map. *Controle and Automacao*, 12(1):11–18.
- Tipping, M. E. and Lowe, D. (1998). Shadow targets: a novel algorithm for topographic projections by radial basis functions. *Neurocomputing*, 19(1):211–222.
- Tirri, H. (1991). Implementing expert system rule conditions by neural networks. *New Generation Computing*, 10(1):55–71.
- Tirri, H. and Mallenius, S. (1995). Optimizing the hard address distribution for sparse distributed memories. In *1995 IEEE International Conference on Neural Networks Proceedings*, volume 4, pages 1966–70. IEEE, New York, NY, USA.
- Tissainayagam, D., Everitt, D., and Palaniswami, M. (1997). Mosaic learning: A new algorithm for self organizing neural networks to learn dynamic channel assignment schemes. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 910–913. Springer, Singapore.
- Toborg, S. T. (1994). Performance comparison of neural networks for undersea mine detection. In amd Dennis W. Ruck, S. K. R., editor, *Proc. SPIE—The International Society for Optical Engineering, Volume 2243 Applications of Artificial Neural Networks V*, pages 200–211, Bellingham, WA. SPIE.
- Todeschini, R., Galvagni, D., Vilchez, J. L., Delolmo, M., and Navas, N. (1999). Kohonen artificial neural networks as a tool for wavelength selection in multicomponent spectrofluorometric PIs modeling application to phenol, O cresol, M cresol and P cresol mixtures. *TrAC—Trends in Analytical Chemistry*, 18:93–98.
- Togawa, F., Ueda, T., Aramaki, T., and Tanaka, A. (1991). Receptive field neural network with shift tolerant capability for Kanji character recognition. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1490–1499, Piscataway, NJ. IEEE; Int. Neural Networks Soc, IEEE Service Center.
- Togneri, R., Alder, M., and Attikiouzel, Y. (1990a). Speech processing using artificial neural networks. In *Proc. Third Australian International Conference on Speech Science and Technology*, pages 304–309, Melbourne, Australia.
- Togneri, R., Alder, M., and Attikiouzel, Y. (1992a). Dimension and structuure of the speech space. *IEE Proceedings-I*, 139(2):123–127.
- Togneri, R., Alder, M. D., and Attikiouzel, Y. (1990b). Parameterisation of the speech space using the self-organising neural network. In Tsang, C. P., editor, *Proc. AI'90, 4th Australian Joint Conf. on Artificial Intelligence*, pages 274–283, Singapore. World Scientific.
- Togneri, R. and Attikiouzel, Y. (1991). Parallel implementation of the Kohonen algorithm on transputer. In *Proc. IJCNN-91, International Joint Conference on Neural Networks, Singapore*, volume II, pages 1717–1722, Los Alamitos, CA. IEEE Computer Society Press.
- Togneri, R., Farrokhi, D., Zhang, Y., and Attikiouzel, Y. (1992b). A comparison of the LBG, LVQ, MLP, SOM and GMM algorithms for vector quantization and clustering analysis. In *Proc. Fourth Australian International Conference on Speech Science and Technology*, pages 173–177, Brisbane, Australia.

- Togneri, R., Zhang, Y., deSilva, C. J. S., and Attikiouzel, Y. (1992c). A comparison of the LVQ and EM algorithms for vector quantization. In *Proc. Third Int. Symp. on Signal Processing and its Applications*, volume II, pages 384–387.
- Toivanen, P. J., Ansamäki, J., Leppäjärvi, S., and Parkkinen, J. (1998). Edge detection of multispectral images using the 1-D self-organizing map. In Niklasson, L., Bodén, M., and Ziemke, T., editors, *Proceedings of ICANN98, the 8th International Conference on Artificial Neural Networks*, volume 2, pages 737–742. Springer, London.
- Toivanen, P. J., Ansamäki, J., Leppäjärvi, S., and Parkkinen, J. P. S. (1999). Multispectral edge detection using the 2-dimensional self-organizing map. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 3647, pages 103–110.
- Toivainen, P., Kaipainen, M., and Louhivuori, J. (1995). Musical timbre: similarity ratings correlate with computational feature space distances. *Journal of New Music Research*, 24(3):282–98.
- Tokunaga, M., Kohno, K., Hashizume, Y., Hamatani, K., Watanabe, M., Nakamura, K., and Ageishi, Y. (1992). Learning mechanism and an application of FFS-network reasoning system. In *Proc. 2nd International Conference on Fuzzy Logic and Neural Networks, Iizuka, Japan*, pages 123–126.
- Tokutaka, H. (1997a). Application of self-organizing maps (SOM) to the data of chemical analysis and the surroundings of SOM (in Japanese). *Journal of Surface Analysis*, 3:545–557.
- Tokutaka, H. (1997b). Condensed review of SOM and LVQ research in Japan. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 322–329. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Tokutaka, H. and Fujimura, K. (1999). SOM-TSP: An approach to optimize surface component mounting on a printed circuit board. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 219–230. Elsevier, Amsterdam.
- Tokutaka, H., Fujimura, K., Iwamoto, K., Kishida, S., and Yoshihara, K. (1997). Applications of self-organizing maps to a chemical analysis. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 1318–1321. Springer, Singapore.
- Tokutaka, H., Fujimura, K., Iwamoto, K., Obu-Cann, K., Kishida, S., and Yoshihara, K. (1998a). Applications of self-organising maps to a chemical analysis. *Australian Journal of Intelligent Information Processing Systems*, 5:181–6.
- Tokutaka, H., Fujimura, K., and Yoshihara, K. (1999a). Application of self-organizing maps (SOM) to the round-robin CoNi alloy spectra data: By that, is it possible to see the characteristics of the measurement instruments? *Journal of the Surface Science Society of Japan*, 20(3):52–59. (in Japanese).
- Tokutaka, H., Kishida, S., and Fujimura, K. (1999b). *Application of Self-Organizing Maps—2 Dimensional Visualization of Multi-Dimensional Informations*. Kaibundo Publishing Co. Ltd. (in Japanese).
- Tokutaka, H., Tanaka, A., Fujimura, K., Koukami, T., Kishida, S., and Hase, H. (1995). Solving traveling salesman problem using the Kohonen's SOM method with the renewal function of the lateral inhibitory interaction. Technical Report NC94–79, The Inst. of Electronics, Information and Communication Engineers, Tottori University, Koyama, Japan. (in Japanese).
- Tokutaka, H., Tanaka, M., Kubono, A., Shiraki, W., Miyoshi, T., and Fujimura, K. (1999c). *Visual Explorations in Finance with Self-Organizing Maps (Translated into Japanese)*. Springer-Verlag Tokyo. Authors of English version: Guido Deboeck and Teuvo Kohonen.
- Tokutaka, H., Yoshihara, K., Fujimura, K., Iwamoto, K., and Obu-Cann, K. (1999d). Application of self-organizing maps (SOM) to auger electron spectroscopy (AES). *Surface and Interface Analysis*, 27(8):783–788.

- Tokutaka, H., Yoshihara, K., Fujimura, K., Iwamoto, K., Obu-Cann, K., Watanabe, T., and Kishida, S. (1999e). Application of self-organizing maps (SOM) to chemical data analysis. *Journal of Surface Analysis*, 5(1):102–105.
- Tokutaka, H., Yoshihara, K., Fujimura, K., Iwamoto, K., Watanabe, T., and Kishida, S. (1998b). Applications of self-organizing maps (SOM) to the composition determination of chemical products. In *1998 IEEE International Joint Conference on Neural Networks Proceedings. IEEE World Congress on Computational Intelligence*, volume 1, pages 301–5. IEEE, New York, NY, USA.
- Tokutaka, H., Yoshihara, K., Fujimura, K., Obu-Cann, K., and Iwamoto, K. (1999f). Application of self-organizing maps (SOM) to chemical analysis. *Applied Surface Science*, 144–145:59–63.
- Tokutaka, H., Yoshihara, K., Iwamoto, K., Fujimura, K., Watanabe, T., and Kishida, K. (1998c). Application of self-organizing maps to chemical analysis. *Journal of the Vacuum Society of Japan*, 41(3). (in Japanese).
- Tolat, V. V. (1990). An analysis of Kohonen's self-organizing maps using a system of energy functions. *Biol. Cyb.*, 64(2):155–164.
- Tolat, V. V. and Peterson, A. M. (1989). A self-organizing neural network for classifying sequences. In *Proc. IJCNN'89, International Joint Conference on Neural Networks*, volume II, pages 561–568.
- Tolba, A. S. (1999). Glovesignature: a virtual-reality-based system for dynamic signature verification. *Digital Signal Processing*, 9:241–66.
- Tolba, A. S. (2000). A parameter-based combined classifier for invariant face recognition. *CYBERNETICS AND SYSTEMS*, 31(8):837–849.
- Tolba, A. S. (2001). Invariant gender identification. *Digital Signal Processing: A Review Journal*, 11(3):222–240.
- Tolba, A. S. and Abu-Rezeq, A. N. (1997). Self-organizing feature map for automated visual inspection of textile products. *Computers in Industry*, 32(3):319–333.
- Tolba, A. S. and Abu-Rezq, A. N. (1999). Combined classifiers for invariant face recognition. In *Proceedings 1999 International Conference on Information Intelligence and Systems*, pages 350–9, Los Alamitos, CA, USA. IEEE Computer Society Press.
- Tolba, A. S. and Abu Rezq, A. N. (2000). Combined classifiers for invariant face recognition. *Pattern-Analysis-and-Applications*, 3:289–302.
- Tolba, A. S., Abu-Rezq, A. N., and Al Mazeedi, M. (1999a). Adaptive texture classification with Hartley transform and application to visual inspection. *Microcomputer-Applications*, 18:71–6.
- Tolba, A. S., Ashraf, M., and Abu Rezq, A. N. (1999b). Eyes-strip extraction for detection of a human face. In *ICM'99. Proceedings. Eleventh International Conference on Microelectronics. Kuwait Univ, Safat, Kuwait*, pages 109–12.
- Tomberg, J. (1992). *Integrated Circuit Implementations of Artificial Neural Networks*. PhD thesis, Tampere University of Technology, Tampere, Finland.
- Tomberg, J. and Kaski, K. (1992). VLSI architecture of the self-organizing neural network using synchronous pulse-density modulation technique. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks*, 2, volume II, pages 1431–1434, Amsterdam, Netherlands. North-Holland.
- Tomescu, B. and VanLandingham, H. F. (1997). Neuro-fuzzy multi-model control using sugeno inference and Kohonen tuning in parameter space. *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics*, 2:1028–1032.

- Tomsich, P., Rauber, A., and Merkl, D. (2000a). Optimizing the parSOM neural network implementation for data mining with distributed memory systems and cluster computing. In *Proceedings 11th International Workshop on Database and Expert Systems Applications. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 661–5.
- Tomsich, P., Rauber, A., and Merkl, D. (2000b). parSOM: Using parallelism to overcome memory latency in self-organizing neural networks. In *HIGH PERFORMANCE COMPUTING AND NETWORKING, PROCEEDINGS*, pages 136–145.
- Torkkola, K. (1988). Automatic alignment of speech with phonetic transcriptions in real time. In *Proc. ICASSP-88, International Conference on Acoustics, Speech and Signal Processing*, pages 611–614, Piscataway, NJ. IEEE, IEEE Service Center.
- Torkkola, K. (1991a). A combination of neural network and low level AI-techniques to transcribe speech into phonemes. In Kohonen, T. and Fogelman-Soulie, F., editors, *COGNITIVA-90*, pages 405–416. Elsevier.
- Torkkola, K. (1991b). *Short-Time Feature Vector Based Phonemic Speech Recognition with the Aid of Local Context*. PhD thesis, Helsinki University of Technology, Espoo, Finland.
- Torkkola, K. (1993a). An efficient way to learn English grapheme-to-phoneme rules automatically. In *ICASSP-93. 1993 IEEE International Conference on Acoustics, Speech, and Signal Processing*, volume 2, pages 199–202, New York, NY, USA. Inst. Dalle Molle D'Intelligence Artificielle Perceptive, Martigny, Switzerland, IEEE.
- Torkkola, K. (1993b). LVQ-based codebooks in phonemic speech recognition. In *Proc. of NATO ASI workshop on new advances and trends in speech recognition and coding*. Springer-Verlag.
- Torkkola, K. (1994a). LVQ as a feature transformation for HMMs. In *Proc. NNNSP'94, IEEE Workshop on Neural Networks for Signal Processing*, pages 299–308, Piscataway, NJ. IEEE, IEEE Service Center.
- Torkkola, K. (1994b). New ways to use LVQ-codebooks together with hidden Markov models. In *Proc. ICASSP-94, International Conference on Acoustics, Speech and Signal Processing*, pages 401–404, Piscataway, NJ. IEEE, IEEE Service Center.
- Torkkola, K. (1997). WarpNet: self-organizing time warping. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 169–174. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Torkkola, K., Gardner, R. M., Kaysser Kranich, T., and Ma, C. (2000). Mining gene expression data: clustering with self-organizing maps. In *Proceedings of the Fourth International Conference on the Practical Application of Knowledge Discovery and Data Mining. Practical Application Company, Blackpool, UK*, pages 63–72.
- Torkkola, K., Gardner, R. M., Kaysser-Kranich, T., and Ma, C. (2001). Self-organizing maps in mining gene expression data. In Gattiker, J. R., Wang, J. T. L., and Wang, P. P., editors, *Information Sciences*, volume 139, pages 79–96. Motorola Labs, MD ML28.
- Torkkola, K., Kangas, J., Utela, P., Kaski, S., Kokkonen, M., Kurimo, M., and Kohonen, T. (1991a). Status report of the Finnish phonetic typewriter project. In Kohonen, T., Mäksisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume I, pages 771–776, Amsterdam, Netherlands. North-Holland.
- Torkkola, K. and Kohonen, T. (1995). Speech recognition: A hybrid approach. In Arbib, M. A., editor, *The Handbook of Brain Theory and Neural Networks*, pages 907–910. The MIT Press, Cambridge, Massachusetts.
- Torkkola, K. and Kokkonen, M. (1991). Using the topology-preserving properties of SOFMs in speech recognition. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 261–264, Piscataway, NJ. IEEE, IEEE Service Center.

- Torkkola, K., Kokkonen, M., Kurimo, M., and Utela, P. (1991b). Improving short-time speech frame recognition results by using context. In *Proc. Eurospeech'91, 2nd European Conference on Speech Communication and Technology*, volume 2, pages 793–796, Genova, Italy.
- Torma, M. (1994). Kohonen self-organizing feature map and its use in clustering. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2357(pt. 2):830–5.
- Törönen, P., Kolehmainen, M., Wong, G., and Castrén, E. (1999). Analysis of gene expression data using self-organizing maps. *FEBS Letters*, 451:142–146.
- Toshiji, K. and Genyo, U. (2001). Fault location identification in power transformer impulse test using kohonen's self-organizing map. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-C*, 121:1670–5.
- Tóth, G. J. and Lőrincz, A. (1993a). Genetic algorithm with migration on topology conserving maps. In *Proc. WCNN'93, World Congress on Neural Networks*, volume III, pages 168–171, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Tóth, G. J. and Lőrincz, A. (1993b). Genetic algorithm with migration on topology conserving maps. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 605–608, London, UK. Springer.
- Tóth, G. J., Szakacs, T., and Lőrincz, A. (1993a). Simulation of pulsed laser material processing controlled by an extended self-organizing Kohonen feature map. *Materials Science & Engineering B (Solid-State Materials for Advanced Technology)*, B18(3):281–288.
- Tóth, G. J., Szakács, T., and Lőrincz, A. (1993b). Simulation of pulsed laser material processing controlled by an extended self-organizing Kohonen feature map. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, page 861, London, UK. Springer.
- Tóth, G. J., Szakács, T., and Lőrincz, A. (1993c). Simulation of pulsed laser material processing controlled by an extended Self-Organizing Kohonen Feature Map. In *Proc. WCNN'93, World Congress on Neural Networks*, volume III, pages 127–130, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Tourassi, G. D. and Jr, C. E. F. (1995). Lesion size quantification in spect using an artificial neural network classification approach. *Computers and Biomedical Research*, 28(3):257–270.
- Touzet, C. (1992). *Reseaux de neurones artificiels: introduction au connexionnisme (Artificial neural nets: introduction to connectionism)*. EC2, Nanterre, France. (in French).
- Touzet, C. (1996). Neural reinforcement learning for an obstacle avoidance behavior. In *IEE Colloquium on Self Learning Robots (Digest No. 1996/026)*, pages 6/1–3, London, UK. DIAM-IUSPIM, Domaine Univ. , France, IEE.
- Touzet, C., Giambiasi, N., and Sehad, S. (1997). Neural reinforcement learning for behavior synthesis. In Hameurlain, A. and Tjoa, A. M., editors, *Symposium on Robotics and Cybernetics. CESA '96 IMACS Multiconference. Computational Engineering in Systems Applications*, pages 734–9. Springer-Verlag, Berlin, Germany.
- Touzet, C. and Santos, J. M. (1998). *Reinforcement function design and bias for efficient learning in mobile robots*.
- Touzet, C. F. (1997). Neural reinforcement learning for behaviour synthesis. *Robotics and Autonomous Systems*, 22(3–4):251–81.
- Touzet, C. F. and Santos, J. M. (2001). Q-learning and robotics. In *Simulation in Industry '2001. 13th European Simulation Symposium 2001. ESS'2001. SCS Eur. BVBA, Ghent, Belgium*, pages 685–8.

- Townsend, N. W., Brownlow, M. J., and Tarassenko, L. (1994). Radial basis function networks for mobile robot localisation. In *Proc. WCNN'94, World Congress on Neural Networks*, volume II, pages 9–14, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Trautmann, T. and Denceux, T. (1994). A constructive algorithm for SOM applied to water quality monitoring. In Dagli, C. H., Fernandez, B. R., Ghosh, J., and Kumara, R. T. S., editors, *Intelligent Engineering Systems Through Artificial Neural Networks*, volume 4, pages 17–22. ASME, New York, NY, USA.
- Trautmann, T. and Denœux, T. (1995). Comparison of dynamic feature map models for environmental monitoring. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume I, pages 73–78, Piscataway, NJ. IEEE Service Center.
- Treleaven, P. C. (1989). Neurocomputers. *Int. J. Neurocomputing*, 1(1):4–31.
- Trumper, W. (1992). A neural network as a self-learning controller. *Automatisierungstechnik*, 40(4):142–147. (in German).
- Truong, K. K. (1991). Multilayer Kohonen image codebooks with a logarithmic search complexity. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume IV, pages 2789–2792, Piscataway, NJ. IEEE, IEEE Service Center.
- Truong, K. K. and Mersereau, R. M. (1990). Structural image codebooks and the self-organizing feature map algorithm. In *Proc. ICASSP-90, International Conference on Acoustics, Speech and Signal Processing*, volume IV, pages 2289–2292, Piscataway, NJ. IEEE, IEEE Service Center.
- Tryba, V. and Goser, K. (1991a). A modified algorithm for self-organizing maps based on the Schrodinger equation. In Ramacher, U., Ruckert, U., and Nossek, J. A., editors, *Proc. of the 2nd International Conference on Microelectronics for Neural Networks*, pages 83–93, Munich, Germany. Kyril & Method Verlag.
- Tryba, V. and Goser, K. (1991b). A modified algorithm for self-organizing maps based on the Schrödinger equation. In Prieto, A., editor, *Proc. IWANN, Int. Workshop on Artificial Neural Networks*, pages 33–47, Berlin, Heidelberg. Springer.
- Tryba, V. and Goser, K. (1991c). Self-Organizing Feature Maps for process control in chemistry. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, pages 847–852, Amsterdam, Netherlands. North-Holland.
- Tryba, V. and Goser, K. (1993). Three algorithms for searching the minimum distance in self-organizing maps. In Verleysen, M., editor, *Digest of ESANN'93*, pages 215–220, Brussels, Belgium. D facto conference services.
- Tryba, V., Marks, K. M., Rückert, U., and Goser, K. (1988). Selbstorganisierende karten als lernende klassifizierende speicher. In *Tagungsband der ITG-Fachtagung*.
- Tryba, V., Metzen, S., and Goser, K. (1989). Designing basic integrated circuits by self-organizing feature maps. In *Neuro-Nîmes '89. Int. Workshop on Neural Networks and their Applications*, pages 225–235, Nanterre, France. ARC; SEE, EC2.
- Tryba, V., Speckmann, H., and Goser, K. (1990). A digital hardware-implementation of self-organizing feature map as a neural coprocessor to a von-Neumann computer. In *Proc. 1st Int. Workshop on Microelectronics for Neural Networks*, pages 177–186.
- Tsai, J. H. and Wang, J. H. (1999). Using self-creating neural network for surface reconstruction. In *IEEE SMC'99 Conference Proceedings. 1999 IEEE International Conference on Systems, Man, and Cybernetics.*, volume 4, pages 886–90, Piscataway, NJ. IEEE Service Center.
- Tsai, W. K., Lo, Z. P., Lee, H. M., Liau, T., Chien, R., Yang, R., and Parlos, A. (1991). A novel self-organizing associative memory and its application to nonlinear system identification. In *Proc. IJCNN-91, International Joint Conference on Neural Networks*, volume II, page 1003, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.

- Tsang, K. and Wei, B. W. Y. (1994). A VLSI architecture for a real-time code book generator and encoder of a vector quantizer. *IEEE Transactions on Very Large Scale Integration [VLSI] Systems*, 2(3):360–4.
- Tsao, E. C.-K., Bezdek, J. C., and Pal, N. R. (1992a). Image segmentation using fuzzy LVQ clustering networks. In *NAFIPS'92, NASA Conf. Publication 10112*, volume I, pages 98–107. North American Fuzzy Information Processing Society.
- Tsao, E. C.-K., Bezdek, J. C., and Pal, N. R. (1994). Fuzzy Kohonen clustering networks. *Pattern Recognition*, 27(5):757–64.
- Tsao, E. C.-K. and Liao, H.-Y. (1993). Fuzzy Kohonen clustering networks for reducing search space in 3-D object recognition. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, page 249, London, UK. Springer.
- Tsao, E. C. K., Lin, W.-C., and Chen, C.-T. (1993). Constraint satisfaction neural networks for image recognition. *Pattern Recognition*, 26(4):553–567.
- Tsao, E. C. K., Lin, W.-C., Chen, C.-T., Bezdek, J. C., and Pal, N. R. (1992b). A neural network system for medical image understanding. In Fisherman, M. B., editor, *Proceedings of the 5th Florida Artificial Intelligence Research Symposium*, pages 24–8, St. Petersburg, FL, USA. Div. of Comput. Sci. , Univ. of West Florida, Pensacola, FL, USA, Florida AI Res. Soc.
- Tsay, M. K., Shyu, K. H., and Chang, P. C. (1999). Feature transformation with generalized learning vector quantization for hand-written chinese character recognition. *IEICE Transactions on Information and Systems E82-D 3 1999*, pages 687–692.
- Tsay, T. I. J. and Chen, J. Y. (1999). Intelligent visual control of robot manipulators. In *30th International Symposium on Robotics. Celebrating the 30th Anniversary toward the Next Millennium. Japan Robot Assoc, Tokyo, Japan*, pages 445–52.
- Tschichold-Gürman, N. and Dabija, V. G. (1993). Meaning-based handling of don't care attributes in artificial neural networks. In *Proc. ICNN'93, International Conference on Neural Networks*, volume I, pages 281–286, Piscataway, NJ. IEEE, IEEE Service Center.
- Tse, P., Wang, D. D., and Atherton, D. (1995a). Improving learning vector quantization classifier in machine fault diagnosis by adding consistency. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume II, pages 927–931, Piscataway, NJ. IEEE Service Center.
- Tse, P., Wang, D. D., and Atherton, D. (1996). Harmony theory yields robust machine fault-diagnostic systems based on learning vector quantization classifiers. *Engineering Applications of Artificial Intelligence*, 9(5):487–98.
- Tse, P., Wang, D. D., and Xu, J. (1995b). Classification of image texture inherited with overlapped features using learning vector quantization. In *Proceedings of the Second International Conference on Mechatronics and Machine Vision in Practice. M/sup 2/VIP '95*, pages 286–90. City Univ. Hong Kong, Hong Kong.
- Tsopanoglou, A., Mourjopoulos, J., and Kokkinakis, G. (1994). Adaptation of an isolated word speech recognition system to continuous speech using multisection LVQ codebook modification and prosodic parameter transformation. *Speech Communication*, 15(1):1–20.
- Tsuji, T., Ito, K., and Morasso, P. (1993). Learning of robot arm impedance in operational space using neural networks. In *Proceedings of the International Joint Conference on Neural Networks (IJCNN'93—Nagoya 25–29 october '93)*, volume 1, pages 635–638.
- Tsuji, T., Morasso, P., Shigehashi, K., and Kaneko, M. (1995). Motion planning for manipulators using artificial potential field approach that can adjust convergence time of generated arm trajectory. *Journal of the Robotics Society of Japan*, 13(3):285–290.

- Tsuruta, N., Taniguchi, R. I., and Amamiya, M. (1998). Hypercolumn model: a combination model of hierarchical self-organizing maps and neocognitron for image recognition. *Transactions of the Institute of Electronics, Information and Communication Engineers*, J81D-II(10):2288–300.
- Tsuruta, N., Yoshiki, Y., and Tobely, T. E. (2001). A randomized hypercolumn model and gesture recognition. In *Connectionist Models of Neurons, Learning Processes, and Artificial Intelligence. 6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001. Proceedings, Part I (Lecture Notes in Computer Science Vol. 2084)*. Springer-Verlag, Berlin, Germany, pages 235–42.
- Tu, F., Wen, F., Willett, P., Pattipati, K., and Jordan, E. H. (2001). Signal processing and neural network toolbox and its application to failure diagnosis and prognosis. In Willett, P. K. and Kirubarajan, T., editors, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4389, pages 121–132. Department of Electrical Engineering, Univ. of Connecticut, U-2157.
- Tu, Y. and Huang, S. (1996). Two kinds of neural network algorithms suitable for fiber optic sensing array signal processing. *Optical Engineering*, 35(8):2196–202.
- Tu, Y., Huang, S., and Cheng, X. (1994). Two kinds of neural network algorithms suitable for fiberoptic sensing array signal processing. In *PRICAI-94. Proceedings of the 3rd Pacific Rim International Conference on Artificial Intelligence*, volume 1, pages 528–34, Beijing, China. Dept. of Optoelectron. Instrum. , Chongqing Univ. , China, Int. Acad. Publishers.
- Tu, Y., Liu, W., and Huang, S. (1995). A smart structure state monitoring system using OFS array and NN processing. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2566:63–71.
- Tucker, C. A. (1999). Self-organizing maps for time series analysis of electromyographic data. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 5, pages 3577–80, Piscataway, NJ. IEEE Service Center.
- Tuckova, J. and Bores, P. (1996). Influence of the number of the features with the neural network function. *Radioengineering*, 5(1):15–18.
- Tulkki, A. (1998). Real estate investment appraisal of buildings using som. In Deboeck, G. and Kohonen, T., editors, *Visual Explorations in Finance with Self-Organizing Maps*, pages 128–140. Springer, London.
- Tumuluri, C., Mohan, C. K., and Choudfary, A. N. (1996). GST networks: Learning emergent spatiotemporal correlations. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 3, pages 1652–1394. IEEE, New York, NY, USA.
- Tung, S.-L. and Juang, Y.-T. (1994). Modifying the adjustable weights of self-organizing feature maps. In *1994 International Symposium on Artificial Neural Networks. ISANN '94. Proceedings*, pages 435–9, Tainan, Taiwan. Dept. of Electr. Eng. , Nat. Central Univ. , Chung-Li, Taiwan, Nat. Cheng Kung Univ.
- Tung, S.-L., Juang, Y.-T., Lee, L. Y., and Liu, M.-F. (1996). On weight adjustment of self-organizing feature maps. In Hohne, K. H. and Kikinis, R., editors, *1996 IEEE International Conference on Systems, Man and Cybernetics. Information Intelligence and Systems*, volume 1, pages 747–51. Springer-Verlag, Berlin, Germany.
- Turhan Sayan, G., Inan, S., Ince, T., and Leblebicioglu, K. (1998). Applications of artificial neural networks and genetic algorithms to electromagnetic target classification. *The Application of Information Technologies (Computer Science) to Mission Systems*, page 23.
- Turhan Sayan, G. and Ince, T. (1999). Neural network techniques in electromagnetic target classification: a comparison study. In *IEEE Antennas and Propagation Society International Symposium. 1999 Digest. Held in conjunction with: USNC/URSI National Radio Science Meeting.*, volume 4, pages 2222–5, Piscataway, NJ. IEEE Service Center.

- Turhan Sayan, G., Leblebicioglu, K., and Ince, T. (1999). Electromagnetic target classification using time-frequency analysis and neural networks. *Microwave and Optical Technology Letters*, 21(1):63–69.
- Turker, M. A. and Severcan, M. (1994). Intraframe coding with DCT-VQ for image sequence compression. In Yuksel, O., editor, *7th Mediterranean Electrotechnical Conference. Proceedings*, volume 1, pages 238–41, New York, NY, USA. Ankara Electron. Res. & Dev. Inst. . , Turkey, IEEE.
- Turner, M., Austin, J., Allinson, N., and Thompson, P. (1992a). A neural network approach to recognition of structural aberrations in chromosomes. In *Proc. British Machine Vision Association Conf.*, pages 257–265.
- Turner, M., Austin, J., Allinson, N., and Thomson, P. (1992b). An attempt to recognize structural aberrations in chromsoms using a neural network system. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume I, pages 799–802. North-Holland.
- Turner, M., Austin, J., Allinson, N. M., and Thompson, P. (1993). Chromosome location and feature extraction using neural networks. *Image and Vision Computing*, 11(4):235–239.
- Turner, M., Austin, J., Allinson, N. M., and Thomson, P. (1994). Chromsom feature extraction and feature grouping incorporating Kohonen’s SOM. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN’94, International Conference on Artificial Neural Networks*, volume II, pages 1087–1090, London, UK. Springer.
- Tuv, E. and Loizou, G. (1993). Hyperstore: a persistent object store for next-generation applications. In Sacks-Davis, R., editor, *ADC ’94. Proceedings of the 5th Australasian Database Conference*, pages 213–26, Singapore. Dept. of Comput. Sci. , London Univ. , UK, Global Publications Services.
- Tuya, J., Arias, E., Sanchez, L., and Corrales, J. A. (1993). Combination of self-organizing maps and multilayer perceptrons for speaker independent isolated word recognition. In J. Mira, J. Cabestany, A. P., editor, *Proc. IWANN’93, Int. Workshop on Neural Networks, Sitges, Spain*, pages 550–555, Berlin. Springer.
- Tyystjärvi, E., Koski, A., Keränen, M., and Nevalainen, O. (1999). The kautsky curve is a built-in barcode. *Biophysical-Journal*, 77:1159–67.
- Tzovaras, D. and Strintzis, M. G. (1998). Use of nonlinear principal component analysis and vector quantization for image coding. *IEEE Transactions on Image Processing*, 7(8):1218–1223.
- Uchino, E., Kawamura, M., and Nagata, K. (2000). Dynamic pruning process of SOM by using the updated weight information. In *6 th International COnference on Soft Computing, IZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 245–250.
- Uchino, E., Nakashima, S., and Yamakawa, T. (1998). Signal classification by modified LVQ and fuzzy template matching with special reference to gas/water pipe discrimination. In *Proceedings of the 5th International Conference on Soft Computing and Information/Intelligent Systems. Methodologies for the Conception, Design and Application of Soft Computing*, volume 2, pages 720–3, Singapore. World Scientific.
- Uchino, E., Nakashima, S., Yamakawa, T., and Toyoda, Y. (1999). Pattern classification by using self-organized fuzzy templates and its application. In *15th Fuzzy System Symposium (Osaka June 2–5, 1999)*, pages 607–608. in Japanese.
- Ueda, N. and Nakano, R. (1993). A competitive & selective learning method for designing optimal vector quantizers. In *Proc. of IEEE International Conference on Neural Networks, San Francisco*, volume III, pages 1444–1450, Piscataway, NJ. IEEE, IEEE Service Center.
- Ueda, N. and Nakano, R. (1994). A new competitive learning approach based on an equidistortion principle for designing optimal vector quantizers. *Neural Networks*, 7(8):1211–1227.

- Ultsch, A. (1992). Knowledge acquisition with self-organizing neural networks. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks*, 2, volume I, pages 735–738, Amsterdam, Netherlands. North-Holland.
- Ultsch, A. (1993a). Knowledge extraction from self-organizing neural networks. In Opitz, O., Lausen, B., and Klar, R., editors, *Information and Classification*, pages 301–306, London, UK. Springer.
- Ultsch, A. (1993b). Self organized feature maps for monitoring and knowledge aquisition of a chemical process. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 864–867, London, UK. Springer.
- Ultsch, A. (1993c). Self-organizing neural networks for visualization and classification. In Opitz, O., Lausen, B., and Klar, R., editors, *Information and Classification*, pages 307–313, London, UK. Springer.
- Ultsch, A. (1999). Data mining and knowledge discovery with emergent selg-organizing feature maps for multivariate time series. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 33–46. Elsevier, Amsterdam.
- Ultsch, A. (2000). The neuro-data-mine. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. Philipps-University of Marburg, Department of Computer Science, ICSC Academic Press.
- Ultsch, A., Guimaraes, G., and Schmid, W. (1996). Classification and prediction of hail using self-organizing neural networks. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 3, pages 1622–7. IEEE, New York, NY, USA.
- Ultsch, A., Guimaraes, G., and Weber, V. (1994). Self organizing feature maps for logical unification. In Liebowitz, J., editor, *Moving Towards Expert Systems Globally in the 21st Century*, pages 1288–94, Elmsford, NY, USA. Dept. of Math. , Marburg Univ. , Germany, Cognizant Commun. Corp.
- Ultsch, A. and Halmans, G. (1991). Data normalization with self-organizing maps. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, pages 403–406, Piscataway, NJ. IEEE Service Center.
- Ultsch, A., Halmans, G., and Mantyk, R. (1991a). CONKAT: A connectionist knowledge acquisition tool. In Milutinovic, V. and Shriver, B. D., editors, *Proc. Twenty-Fourth Annual Hawaii International Conference on System Sciences*, volume I, pages 507–513, Piscataway, NJ. IEEE, IEEE Service Center.
- Ultsch, A., Hannuschka, R., Mandischer, U. H. M., and Weber, V. (1991b). Optimizing logical proofs with connectionist networks. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume I, pages 585–590, Amsterdam, Netherlands. North-Holland.
- Ultsch, A. and Korus, D. (1995). Integration of neural networks with knowledge-based systems. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume IV, pages 1828–1833, Piscataway, NJ. IEEE Service Center.
- Ultsch, A. and Siemon, H. P. (1989). Exploratory data analysis: Using Kohonen networks on transputers. Technical Report 329, Univ. of Dortmund, Dortmund, Germany.
- Ultsch, A. and Siemon, H. P. (1990). Kohonen's self organizing feature maps for exploratory data analysis. In *Proc. INNC'90, Int. Neural Network Conf.*, pages 305–308, Dordrecht, Netherlands. Kluwer.
- Um, I.-T., Ra, J.-H., and Kim, M.-H. (2000). Comparison of clustering methods for MLP-based speaker verification. In *Proceedings 15th International Conference on Pattern Recognition. ICPR-2000. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 2, pages 475–8.

- Umano, M., Fukunaka, S., Hatono, I., and Tamura, H. (1996). Extraction of fuzzy rules using fuzzy neural networks with forgetting. *Transactions of the Society of Instrument and Control Engineers*, 32(3):409–32.
- Umano, M., Fukunaka, S., Hatono, I., and Tamura, H. (1997). Acquisition of fuzzy rules using fuzzy neural networks with forgetting. In Mira, J., Moreno-Diaz, R., and Cabestany, J., editors, *1997 IEEE International Conference on Neural Networks. Proceedings*, volume 4, pages 2369–73. Springer-Verlag, Berlin, Germany.
- Umezaki, T., Hirano, T., and Sato, Y. (2001). Automatic synthesis of 3d facial expression. *Transactions-of-the-Institute-of-Electrical-Engineers-of-Japan,-Part-C*, 121:417–22.
- Unlu, D. and Halici, U. (1990a). Neural network applications in user identification. In Harmanci, A. E. and Gelenbe, E., editors, *Proc. of the Fifth Int. Symposium on Computer and Information Sciences*, pages 1051–1060.
- Unlu, D. and Halici, U. (1990b). User identification through neural networks. In *Artificial Intelligence Application & Neural Networks (AINN'90)*, pages 152–155, Anaheim, CA. The Int. Association of Science and Technology for Development, ACTA Press.
- Unneberg, P., Merelo, J. J., Chacon, P., and Moran, F. (2001). SOMCD: Method for evaluating protein secondary structure from UV circular dichroism spectra. *PROTEINS-STRUCTURE FUNCTION AND GENETICS*, 42(4):460–470.
- Urushibata, K., Hoshida, T., Suzumura, T., and Oyabu, M. (2000). Application of self-organizing maps to cluster of x-ray photoelectron spectra of organic polymers. In *6 th International Conference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 305–10.
- Utela, P., Kangas, J., and Leinonen, L. (1992a). Self-organizing map in acoustic analysis and on-line visual imaging of voice and articulation. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume I, pages 791–794, Amsterdam, Netherlands. North-Holland.
- Utela, P., Kaski, S., and Torkkola, K. (1992b). Using phoneme group specific LVQ-codebooks with HMMs. In *Proc. ICSLP'92 International Conference on Spoken Language Processing (ICSLP 92). Banff, Alberta, Canada, October 12–16*, pages 551–554, Edmonton, Canada. Personal Publishing Ltd.
- Utela, P., Torkkola, K., Leinonen, L., Kangas, J., Kaski, S., and Kohonen, T. (1992c). Speech recognition and analysis. In *Proc. SteP'92, Fifth Finnish Artificial Intelligence Conf. , New Directions in Artificial Intelligence*, volume II, pages 178–182, Helsinki, Finland. Finnish Artificial Intelligence Society.
- Utsugi, A. (1994). Lateral interaction in Bayesian self-organizing maps. *Transactions of the Institute of Electronics, Information and Communication Engineers*, J77D-II(7):1329–36.
- Utsugi, A. (1996). Topology selection for self-organizing maps. *Network: Computation in Neural Systems*, 7(4):727–40.
- Utsugi, A. (1997). Hyperparameter selection for self-organizing maps. *Neural Computation*, 9(3):623–635.
- Utsugi, A. (1998). Density estimation by mixture models with smoothing priors. *Neural Computation*, 10:2115–2135.
- Utsugi, A. (2000). Bayesian sampling and ensemble learning in generative topographic mapping. *Neural Processing Letters*, 12(3):277–290.
- Vahey, M. T., Nau, M. E., Jagodzinski, L. L., Valley-Ogunro, J., Taubman, M., Michael, N. L., and Lewis, M. G. (2002). Impact of viral infection on the gene expression profiles of proliferating normal human peripheral blood mononuclear cells infected with HIV type 1 RF. *AIDS RESEARCH AND HUMAN RETROVIRUSES*, 18(3):179–192.

- Vailaya, A. and Jain, A. (2000a). Detecting sky and vegetation in outdoor images. *Proceedings of SPIE—The International Society for Optical Engineering*, 3972:411–420.
- Vailaya, A. and Jain, A. (2000b). Reject option for VQ-based bayesian classification. In *Proceedings 15th International Conference on Pattern Recognition. ICPR-2000. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 2, pages 48–51.
- Valentin, N. and Denoeux, T. (2001). A neural network-based software sensor for coagulation control in a water treatment plant. *Intelligent-Data-Analysis*, 5:23–39.
- Valentin, N., Denoeux, T., and Fotoohi, F. (1999a). An hybrid neural network based system for optimization of coagulant dosing in a water treatment plant. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 5, pages 3380–5, Piscataway, NJ. IEEE Service Center.
- Valentin, N., Denoeux, T., and Fotoohi, F. (1999b). Modelling of coagulant dosage in a water treatment plant. In *Engineering Applications of Neural Networks. Proceedings of the 5th International Conference on Engineering Applications of Neural Networks (EANN'99)*, pages 165–70, Torun, Poland. Wydawnictwo Adam Marszalek.
- Valerand, S. and Maldague, X. (2000). Defect characterization in pulsed thermography: A statistical method compared with kohonen and perceptron neural networks. *NDT and E International*, 33(5):307–315.
- Valkealahti, K. (1997). Texture classification with single- and double-resolution co-occurrence maps. In *Neural Networks in Engineering Systems. Proceedings of the 1997 International Conference on Engineering Applications of Neural Networks*, volume 1, pages 63–6. Systems Engineering Association, Turku, Finland.
- Valkealahti, K. (1998). *Analysis of Stochastic Textures with Reduced Multidimensional Histograms*. PhD thesis, Helsinki University of Technology, Espoo, Finland.
- Valkealahti, K., Iivarinen, J., Visa, A., and Simula, O. (1993). An operational cloud classifier based on a self-organized texture map. Technical Report A19, Helsinki University of Technology, Laboratory of Computer and Information Science, Espoo, Finland.
- Valkealahti, K. and Oja, E. (1996). Optimal texture feature selection for the co-occurrence map. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 245–50. Springer-Verlag, Berlin, Germany.
- Valkealahti, K. and Visa, A. (1995). Simulated annealing in feature weighting for classification with learning vector quantization. In *Proc. 9th Scandinavian Conference on Image Analysis*, volume 2, pages 965–971.
- Valkealahti, K., Visa, A., and Simula, O. (1992). Applications of texture segmentation based on self-organizing feature maps. In *Proc. Fifth Finnish Artificial Intelligence Conf. (SteP-92): New Directions in Artificial Intelligence*, volume 2, pages 189–193, Helsinki, Finland. Finnish Artificial Intelligence Society.
- Van de Wouwer, G., Scheunders, P., van Dyck, D., de Bodt, M., Wuyts, F., and Van de Heyning, P. H. (1996a). Voice classification by wavelet transform and fuzzy interpreted LVQ networks. In Anderson, P. G. and Warwick, K., editors, *IIA '96/SOCO'96. International ICSC Symposia on Intelligent Industrial Automation and Soft Computing*. Int. Comput. Sci. Conventions, Millet, Alta. , Canada.
- Van de Wouwer, G., Scheunders, P., Van Dyck, D., de Bodt, M., Wuyts, F., and Van de Heyning, P. H. (1996b). Wavelet-FI LVQ classifier for speech analysis. In *Proceedings of the 13th International Conference on Pattern Recognition*, volume 4, pages 214–18. IEEE Computer Society Press, Los Alamitos, CA, USA.

- van den Berg, J. and Schuemie, M. (1999). Information retrieval systems using an associative conceptual space. In *7th European Symposium on Artificial Neural Networks. ESANN'99. Proceedings*, pages 351–6, Brussels, Belgium. D-Facto.
- Van den Bout, D. E. and Miller III, T. K. (1989). TInMANN: the integer Markovian artificial neural network. In *Proc. IJCNN'89, International Joint Conference on Neural Networks*, volume II, pages 205–211, Piscataway, NJ. IEEE, IEEE Service Center.
- Van den Bout, D. E. and Miller III, T. K. (1995). TInMANN: the integer Markovian artificial neural network for performing competitive and Kohonen learning. *Journal of Parallel and Distributed Computing*, 25(2):107–14.
- Van den Bout, D. E., Snyder, W., and Miller III, T. K. (1990). Rapid prototyping for neural networks. In Eckmiller, R., editor, *Advanced Neural Computers*, pages 219–226, Amsterdam, Netherlands. Air Force Office Sci. Res. ; Defence Adv. Res. Agency; et al, North-Holland.
- van der Herik, H. J., Scholtes, J. C., and Verhoest, C. R. J. (1988). The design of a parallel knowledge-based optical character recognition system. In *Proc. European Simulation Multi-conference*, pages 350–358.
- van der Smagt, P. and Groen, F. (1995). Approximation with neural networks: between local and global approximation. In *1995 IEEE International Conference on Neural Networks Proceedings*, volume 2, pages 1060–4. IEEE, New York, NY, USA.
- van der Smagt, P., Groen, F., and van het Groenewoud, F. (1994). The locally linear nested network for robot manipulation. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2787–2792, Piscataway, NJ. IEEE Service Center.
- Van der Spiegel, J., Mueller, P., Blackman, D., Donham, C., Etienne-Cummings, R., Aziz, P., Choudhury, A., Jones, L., and Xin, J. (1990). Artificial neural networks: principles and VLSI implementation. *Proc. SPIE—The International Society for Optical Engineering*, 1405:184–197.
- van Deventer, J. S. J., Aldrich, C., and Moolman, D. W. (1995). The tracking of changes in chemical processes using computer vision and self-organizing maps. In *1995 IEEE International Conference on Neural Networks Proceedings*, volume 6, pages 3068–73. IEEE, New York, NY, USA.
- van Deventer, J. S. J., Moolman, D. W., and Aldrich, C. (1996). Visualisation of plant disturbances using self-organising maps. *Computers & Chemical Engineering*, 20(pt. B, suppl. is):S1095–100. (European Symposium on Computer Aided Process Engineering -6. ESCAPE-6 Conf. Date: 26–29 May 1996 Conf. Loc: Rhodes, Greece).
- van Gils, M. J. and Cluitsman, P. J. M. (1993). Assessing the latency of peak pa in auditory evoked potential using neural networks. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, page 1015, London, UK. Springer.
- Van Hulle, M. M. (1995). Globally-ordered topology-preserving maps achieved with a learning rule performing local weight updates only. In *Proc. NNSP'95, IEEE Workshop on Neural Networks for Signal Processing*, pages 95–104, Piscataway, NJ. IEEE, IEEE Service Center.
- Van Hulle, M. M. (1996a). Combining topographic map formation with projection pursuit learning for nonparametric regression analysis. *Neural Processing Letters*, 4(2):97–105.
- Van Hulle, M. M. (1996b). Nonparametric density estimation and regression achieved with a learning rule for equiprobabilistic topographic map formation. In Usui, S., Tohkura, Y., Katagiri, S., and Wilson, E., editors, *Neural Networks for Signal Processing VI. Proceedings of the 1996 IEEE Signal Processing Society Workshop*, pages 33–41. IEEE, New York, NY, USA.
- van Hulle, M. M. (1996). Topographic map formation by maximizing unconditional entropy: a plausible strategy for 'on-line' unsupervised competitive learning and nonparametric density estimation. *IEEE Transactions on Neural Networks*, 7(5):1299–1305.

- van Hulle, M. M. (1997a). The formation of topographic maps that maximize the average mutual information of the output responses to noiseless input signals. *Neural Computation*, 9(3):595–606.
- van Hulle, M. M. (1997b). Nonparametric density estimation and regression achieved with topographic maps maximizing the information-theoretic entropy of their outputs. *Biological Cybernetics*, 77:49–61.
- van Hulle, M. M. (1997c). Nonparametric regression analysis achieved with topographic maps developed in combination with projection pursuit learning: An application to density estimation and adaptive filtering of grey scale images. *IEEE Transactions on Signal Processing, Special issue on Neural Network Applications to Signal Processing*, 45(11):2663–2672.
- van Hulle, M. M. (1997d). Topology-preserving map formation achieved with a purely local unsupervised competitive learning rule. *Neural Networks*, 10(3):431–446.
- van Hulle, M. M. (1998a). Clustering with kernel-based equiprobabilistic topographic maps. In *Proceedings of the IEEE Workshop on Neural Networks for Signal Processing*, pages 204–213, Cambridge, UK.
- van Hulle, M. M. (1998b). Faithful representations with topographic maps. In *Proceedings of Neural Networks—Networks for Signal Processing*, pages 204–213, Cambridge, UK.
- van Hulle, M. M. (1998c). Kernel-based equiprobabilistic topographic map formation. *Neural Computation*, 10(7):1847–1871.
- van Hulle, M. M. (1998d). Nonparametric regression modeling with equiprobable topographic maps and projection pursuit learning with application to PET image processing. *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology. Special Issue on Applications of Neural Networks in Biomedical Image Processing*, 18:275–285.
- van Hulle, M. M. (1999a). Density-based clustering with topographic maps. *IEEE Transactions on Neural Networks*, 10(1):204–207.
- van Hulle, M. M. (1999b). Faithful representations with topographic maps. *Neural Networks*, 12(6):803–823.
- van Hulle, M. M. (2000). *Faithful Representations and Topographic Maps From Distortion- to Information-based Self-organization*. J. Wiley & Sons, Inc.
- Van Hulle, M. M. (2000). Monitoring the formation of kernel-based topographic maps. *Neural Networks for Signal Processing—Proceedings of the IEEE Workshop*, 1:241–250.
- Van Hulle, M. M. (2001). Towards an information-theoretic approach to kernel-based topographic map formation. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 1–6. Springer.
- Van Hulle, M. M. and Martinez, D. (1993). On an unsupervised learning rule for scalar quantization following the maximum entropy principle. *Neural Computation*, 5(6):939–953.
- Van Laerhoven, K. (2001). Combining the self-organizing map and k-means clustering for on-line classification of sensor data. In *ARTIFICIAL NEURAL NETWORKS-ICANN 2001, PROCEEDINGS*, pages 464–469.
- Van Laerhoven, K. and Cakmakci, O. (2000). What shall we teach our pants? *International Symposium on Wearable Computers, Digest of Papers*, pages 77–83.
- van Osdol, W. W., Myers, T. G., Paull, K. D., Kohn, K. W., and Weinstein, J. N. (1995). The Kohonen Self-Organizing Map applied to in vitro screening data for chemotherapeutic agents. In *Proc. WCNN'95, World Congress on Neural Networks*, volume II, pages 762–766. INNS.
- Van Riet, R. W. M. and Duives, P. C. (1991). Artificial neural networks: an introduction. *Informaticie*, 33(6):368–375. (in Dutch).

- van Velzen, G. A. (1992). Instabilities in Kohonen's self-organizing feature map. Technical Report UBI-T-92. MF-077, Utrecht Biophysics Res. Institute, Utrecht, Netherlands.
- van Velzen, G. A. (1994). Instabilities in Kohonen's self-organizing feature map. *Journal of Physics A [Mathematical and General]*, 27(5):1665–81.
- Vanbiesen, W., Sieben, G., Lameire, N., and Vanholder, R. (1998). Application of Kohonen neural networks for the non morphological distinction between glomerular and tubular renal disease. *Nephrol Dialysis Transplant*, 13:59–66.
- Vanderheyden, Y., Vankeerberghen, P., Novic, M., Zupan, J., and Massart, D. (2000). The application of Kohonen neural networks to diagnose calibration problems in atomic-absorption spectrometry. *Talanta*, 51(3):455–466.
- Vapola, M., Simula, O., Kohonen, T., and Meriläinen, P. (1994a). Monitoring of an anaesthesia system using self-organizing maps. In Carlsson, C., Järvi, T., and Reponen, T., editors, *Proc. Conf. on Artificial Intelligence Res. in Finland*, number 12 in Conf. Proc. of Finnish Artificial Intelligence Society, pages 55–58, Helsinki, Finland. Finnish Artificial Intelligence Society.
- Vapola, M., Simula, O., Kohonen, T., and Meriläinen, P. (1994b). Representation and identification of fault conditions of an anaesthesia system by means of the Self-Organizing Map. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume I, pages 350–353, London, UK. Springer.
- Varfis, A. (1993). On the use of two traditional statistical techniques to improve the readability of Kohonen Maps. In *Proc. of NATO ASI workshop on Statistics and Neural Networks*.
- Varfis, A. and Versino, C. (1992a). Clustering of socio-economic data with Kohonen maps. *Neural Network World*, 2(6):813–834.
- Varfis, A. and Versino, C. (1992b). Selecting reliable Kohonen maps for data analysis. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume II, pages 1583–1586, Amsterdam, Netherlands. North-Holland.
- Varfis, A. and Versino, C. (1993). An intuitive characterization for the reference vectors of a Kohonen map. In Verleysen, M., editor, *Proc. ESANN'93, European Symposium on Artificial Neural Networks*, pages 229–234, Brussels, Belgium. D Facto.
- Varjani, A. Y. and Doulai, P. (1995). Neural network versus time series methods for short-term load forecasting. In *IPEC '95. Proceedings of the International Power Engineering Conference*, volume 2, pages 672–7, Singapore. Wollongong Univ. , NSW, Australia, Nanyang Technol. Univ.
- Varsta, M., del R. Millan, J., and Heikkonen, J. (1997a). A recurrent self-organizing map for temporal sequence processing. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 421–6. Springer-Verlag, Berlin, Germany.
- Varsta, M., Heikkonen, J., and del R. Millan, J. (1997b). Context learning with the self organizing map. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 197–202. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Varsta, M., Heikkonen, J., and Del R. Millan, J. (1997c). Epileptic activity detection in EEG with neural networks. In *Neural Networks in Engineering Systems. Proceedings of the 1997 International Conference on Engineering Applications of Neural Networks*, volume 1, pages 179–86. Systems Engineering Association, Turku, Finland.
- Varsta, M., Heikkonen, J., and Lampinen, J. (2000). Analytical comparison of the temporal kohonen map and the recurrent self organizing map. In *8th European Symposium on Artificial Neural Networks. ESANN"2000. Proceedings. D-Facto, Brussels, Belgium*, pages 273–80.

- Varsta, M., Heikkonen, J., Lampinen, J., and del R. Millan, J. (1998). On the convergence properties of the temporal Kohonen map and the recurrent self-organizing map. In Niklasson, L., Bodén, M., and Ziemke, T., editors, *Proceedings of ICANN98, the 8th International Conference on Artificial Neural Networks*, volume 2, pages 687–692. Springer, London.
- Varsta, M., Heikkonen, J., Lampinen, J., and Millan, J. D. R. (2001). Temporal kohonen map and the recurrent self-organizing map: Analytical and experimental comparison. *Neural Processing Letters*, 13(3):237–251.
- Varsta, M. and Koikkalainen, P. (1996). Surface modeling and robot path generation using self-organization. In *Proceedings of the 13th International Conference on Pattern Recognition*, volume 4, pages 30–4. IEEE Computer Society Press, Los Alamitos, CA, USA.
- Vassilas, N. (1998). Theoretical analysis of the batch variant of the self-organizing feature map algorithm for 1-D networks mapping a continuous 1-D input space. *International Journal of Computer Mathematics*, 67(1):77–103.
- Vassilas, N., Charou, E., and Varoufakis, S. (1997). Fast and efficient land-cover classification of multispectral remote sensing data using artificial neural network techniques. *International Conference on Digital Signal Processing. DSP*, 2:995–998.
- Vassilas, N. and Thiran, P. (1996). On modifications of Kohonen’s feature map algorithm for an efficient parallel implementation. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 2, pages 1390–1394. IEEE, New York, NY, USA.
- Vassilas, N., Thiran, P., and Ienne, P. (1995). How to modify Kohonen’s self-organising feature maps for an efficient digital parallel implementation. In *Fourth International Conference on ‘Artificial Neural Networks’*, pages 86–91, London, UK. Nat. Res. Center Demokritos, Greece, IEE.
- Vassilas, N., Thiran, P., and Ienne, P. (1996). Modifications of Kohonen’s feature map algorithm for an efficient parallel implementation. *IEEE International Conference on Neural Networks*, 2:932–937.
- Veelenturf, L. P. J. (1992). Representation of spoken words in a self-organizing neural net. In Marc F. J. Drossaers, A. N., editor, *Twente Workshop on Language Technology 3: Connectionism and Natural Language Processing*, pages 1–4, Enschede, Netherlands. Department of Computer Science, University of Twente.
- Velay, J. L., Gilhodes, J. C., Ans, B., and Coiton, Y. (1993). A neural network model for motor shapes learning and programming. In Gielen, S. and Kappen, B., editors, *Proc. ICANN’93, International Conference on Artificial Neural Networks*, pages 51–54, London, UK. Springer.
- Vellido, A., Lisboa, P. J. G., and Meehan, K. (1999). Segmentation of the on-line shopping market using neural networks. *Expert Systems with Applications*, 17:303–14.
- Vellido, A., Lisboa, P. J. G., and Meehan, K. (2000a). The generative topographic mapping as a principal model for data visualization and market segmentation: an electronic commerce case study. *International-Journal-of-Computers,-Systems-and-Signals*, 1:119–38.
- Vellido, A., Lisboa, P. J. G., and Meehan, K. (2000b). Segmenting the e-commerce market using the generative topographic mapping. In *MICAI 2000: ADVANCES IN ARTIFICIAL INTELLIGENCE, PROCEEDINGS*, pages 470–481.
- Venkatasubramanian, V. and Rengaswamy, R. (1995). *Neural Networks for Chemical Engineers*, volume 6 of *Computer-Aided Chemical Engineering*, chapter 27, Clustering and statistical techniques in neural networks. Elsevier, Amsterdam.
- Venna, J. and Kaski, S. (2001). Neighborhood preservation in nonlinear projection methods: An experimental study. In *ARTIFICIAL NEURAL NETWORKS-ICANN 2001, PROCEEDINGS*, pages 485–491.

- Venugopal, V. and Narendran, T. T. (1994). Machine-cell formation through neural network models. *International Journal of Production Research*, 32(9):2105–16.
- Vercauteran, L., Sieben, G., and Praet, M. (1990a). The classification of brain tumours by a topological map. In *Proc. INNC'90, Int. Neural Network Conference*, pages 387–391, Dordrecht, Netherlands. Kluwer.
- Vercauteran, L., Vingerhoeds, R. A., and Boullart, L. (1990b). Intelligent dimensional data-reduction by a topological map (the interpretation and use of an insurance database). In Eckmiller, R., Hartmann, G., and Hauske, G., editors, *Parallel Processing in Neural Systems and Computers*, pages 503–507, Amsterdam, Netherlands. Robert Bosch; IBM; Philips; Siemens; et al, North-Holland.
- Vercelli, G. (1994). NAVNEX: an hybrid system which learns navigation situations from SOM. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1307–1310, London, UK. Springer.
- Vercelli, G. and Morasso, P. (1998). Recognition and classification of path features with self-organizing maps during reactive navigation. In *Proceedings. 1998 IEEE/RSJ International Conference on Intelligent Robots and Systems. Innovations in Theory, Practice and Applications*, volume 3, pages 1437–42, New York, NY, USA. IEEE.
- Verikas, A., Malmqvist, K., Bacauskiene, M., and Bergman, L. (2000). Monitoring the de-inking process through neural network-based colour image analysis. *NEURAL COMPUTING & APPLICATIONS*, 9(2):142–151.
- Verikas, A., Malmqvist, K., Bachauskene, M., Bergman, L., and Nilsson, K. (1994). HIERARCHICAL neural network for COLOR classification. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2938–2941, Piscataway, NJ. IEEE Service Center.
- Verikas, A., Malmqvist, K., Bergman, L., and Nilsson, K. (1993). Color classification by neural network. In *Sixth International Conference. Neural Networks and their Industrial and Cognitive Applications. NEURO-NIMES 93 Conference Proceedings and Exhibition Catalog*, pages 329–38, Nanterre, France. Halmstad Univ. , Sweden, EC2.
- Verleysen, M., Thissen, P., and Legat, J.-D. (1993a). An improvement on LVQ algorithms to create classes of patterns. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation, Lecture Notes in Computer Science No. 686*, pages 340–345, Berlin, Heidelberg. Springer.
- Verleysen, M., Thissen, P., and Legat, J.-D. (1993b). Optimal decision surfaces in LVQ1 classification of patterns. In Verleysen, M., editor, *Proc. ESANN'95, European Symposium on Artificial Neural Networks*, pages 209–214, Brussels, Belgium. D Facto.
- Verona, F. B., Lauria, F. E., Sette, M., and Visco, S. (1993). A Boolean net trainable as a computing robot control. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume II, pages 1861–1864, Piscataway, NJ. JNNS, IEEE Service Center.
- Versino, C. and Gambardella, L. M. (1995). Learning the visuomotor coordination of a mobile robot by using the invertible Kohonen map. In Mira, J. and Sandoval, F., editors, *From Natural to Artificial Neural Computation. International Workshop on Artificial Neural Networks. Proceedings*, pages 1084–91. Springer-Verlag, Berlin, Germany.
- Versino, C. and Gambardella, L. M. (1996a). Learning fine motion by using the hierarchical extended Kohonen map. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 221–6. Springer-Verlag, Berlin, Germany.
- Versino, C. and Gambardella, L. M. (1996b). Learning fine motion in robotics: experiments with the hierarchical extended Kohonen map. In Amari, S. I., Xu, L., Chan, L. W., King, I., and Leung, K. S., editors, *Progress in Neural Information Processing. Proceedings of the International Conference on Neural Information Processing*, volume 2, pages 921–5. Springer-Verlag, Singapore.

- Vesanto, J. (1997). Using the SOM and local models in time-series prediction. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 209–214. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Vesanto, J. (1999). Som-based data visualization methods. *Intelligent Data Analysis*, 3:111–26.
- Vesanto, J. and Ahola, J. (1999). Hunting for correlations in data using the self-organizing map. In *Proc. of International ICSC Congress on Computational Intelligence Methods and Applications (CIMA'99), Rochester, New York, USA, June 22–25*, pages 279–285. ICSC Academic Press.
- Vesanto, J. and Alhoniemi, E. (2000). Clustering of the self-organizing map. *IEEE Transactions on Neural Networks*, 11(3):586–600.
- Vesanto, J., Alhoniemi, E., Himberg, J., Kiviluoto, K., and Parviainen, J. (1999a). Self-organizing map for data mining in matlab: The som toolbox. *Simulation News Europe*, (25):54.
- Vesanto, J., Himberg, J., Alhoniemi, E., and Parhankangas, J. (1999b). Self-organizing map in matlab: the som toolbox. In *Proc. of Matlab DSP Conference 1999, Espoo, Finland, November 16–17*, pages 35–40.
- Vesanto, J., Himberg, J., Siponen, M., and Simula, O. (1998). Enhancing SOM based data visualization. In *Proceedings of the 5th International Conference on Soft Computing and Information/Intelligent Systems. Methodologies for the Conception, Design and Application of Soft Computing.*, volume 1, pages 64–7. World Scientific, Singapore.
- Vesanto, J., Vasara, P., Helminen, R. R., and Simula, O. (1997). Integrating environmental, technological and financial data in forest industry analysis. *Neural Networks: Best Practice in Europe*, pages 153–6.
- Viademonte, S., Burstein, F., and Beckenkamp, F. G. (2000). Empirical study of distribution based on voyager: a performance analysis. In *Proceedings of the Hawaii International Conference on System Sciences*, page 37, Los Alamitos, CA. Monash Univ, IEEE.
- Vieira, K., Wilamowski, B., and Kubichek, R. (1997). Speaker identification based on a modified Kohonen network. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume IV, pages 2103–2106. IEEE Service Center, Piscataway, NJ.
- Vignoli, F., Curinga, S., and Lavagetto, F. (1996). A neural clustering algorithm for estimating visible articulatory trajectory. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 863–8. Springer-Verlag, Berlin, Germany.
- Vilain, J., Giron, A., Brahmi, D., Deschavanne, P., and Fertil, B. (1999). Application of curvilinear component analysis to chaos game representation images of genome. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 3647, pages 111–119.
- Villman, T., Badel, B., Kämpf, D., and Geyer, M. (2000). Monitoring of physiological parameters of patients and therapists during psychotherapy sessions using self-organizing maps. In Malmgren, H., Boga, M., and Niklasson, L., editors, *Artificial Neural Networks in Medicine and Biology, Prodeedings of the ANNIMAB-1 COnference, Göteborg, Sweden, 13–16 May 2000*, pages 221–226.
- Villmann, T., , and Merényi, E. (2000a). Extensions and modifications of the som and its application in satellite remote sensoring processing. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23–26, 2000 in Berlin, Germany*. Klinik un Poliklinik für Psychotherapie und Psychosomatische Medizin, Universität Leipzig; Lunar and Planetary Laboratory, University of Arizona, ICSC Academic Press.
- Villmann, T. (1998). Estimation of topography in self-organizing maps and data driven growing of suitable network structures. In Lieven, K., editor, *Proceedings of European Congress on Intelligent Techniques and Soft Computing (EUFIT'98)*, volume 1, pages 235–244, Aachen, Germany. ELITE Foundation.

- Villmann, T. (1999a). Benefits and limits of the self-organizing map and its variants in the area of satellite remote sensing processing. In *Proc. of European Symposium on Artificial Neural Networks (ESANN'99)*, pages 111–116, Brussels, Belgium. D facto publications.
- Villmann, T. (1999b). Topology preservation in self-organizing maps. In Oja, E. and Kaski, S., editors, *Kohonen Maps*, pages 279–292. Elsevier, Amsterdam.
- Villmann, T. and Bauer, H. U. (1998). Applications of the growing self-organizing map. *Neurocomputing*, 21(1):91–100.
- Villmann, T., Bauer, H. U., and Herrmann, M. (1997a). Neuronale Merkmalskarten und Topologieerhaltung. In Groß, H.-M., editor, *Proceedings of Selbstorganisation Von Adaptivem Verfahren (SOAVE'97) Ilmenau*, pages 119–126, VDI-Verlag Düsseldorf. Fortschrittsberichte des VDI.
- Villmann, T., Bauer, H. U., and Villmann, T. (1997b). The GSOM-algorithm for growing hypercubical output spaces in self-organizing maps. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 286–291. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Villmann, T., Der, R., Herrmann, M., and Martinetz, T. M. (1997c). Topology preservation in self-organizing feature maps: exact definition and measurement. *IEEE Transactions on Neural Networks*, 8(2):256–266.
- Villmann, T., Der, R., and Martinetz, T. (1994a). A new quantitative measure of topology preservation in Kohonen's feature maps. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 645–648, Piscataway, NJ. IEEE Service Center.
- Villmann, T., Der, R., and Martinetz, T. (1994b). A novel approach to measure the topology preservation of feature maps. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume I, pages 298–301, London, UK. Springer.
- Villmann, T., Haupt, R., and Hering, K. (2000b). Parallel evolutionary algorithms with SOM-like migration and its application to VLSI-design. In *Proceedings of the International Joint Conference on Neural Networks*, volume 5, pages 167–172, Piscataway, NJ. Universitaet Leipzig, IEEE.
- Villmann, T., Hermann, W., and Geyer, M. (2000c). Data mining and knowledge discovery in medical applications using self-organizing maps. In *Medical Data Analysis. First International Symposium, ISMDA 2000. Proceedings (Lecture Notes in Computer Science Vol.1933). Springer-Verlag, Berlin, Germany*, pages 138–51.
- Villmann, T., Hermann, W., and Geyer, M. (2000d). Variants of self-organizing maps for data mining and data visualization in medicine. *Neural-Network-World*, 10:751–62.
- Villmann, T. and Herrmann, M. (1998). Magnification control in neural maps. In *Proc. of European Symposium on Artificial Neural Networks (ESANN'98)*, pages 191–196, Brussels, Belgium. D facto publications.
- Villmann, T. and Hessel, A. (1999). Analyzing psychotherapy process time series using neural maps. In *ICANN99. Ninth International Conference on Artificial Neural Networks (IEE Conf. Publ. No.470)*, volume 2, pages 767–72, London, UK. IEE.
- Villmann, T., Hessel, A., and Plöttner, G. (1998a). The growing SOM for estimation of the intrinsic dimension and range of psychotherapy process data. In Wang, P. P. and Georgiou, G. M., editors, *Proceedings of the 3rd International Conference on Computational Intelligence and Neuroscience*, volume 2, pages 72–75, Duke University and Research Triangle Park, Durham, North Carolina (USA). Association for Intelligent Machinery, Inc.

- Villmann, T., Körner, A., and Albani, C. (1998b). Evolutionary algorithms with migration scheme inspired by neural dynamic and its application to reformulation of categories in psychotherapy research. In Ifeachor, E. C., Sperduti, A., and Starita, A., editors, *Neural Networks and Expert Systems in Medicine and Healthcare*, pages 313–321, Singapore. World Scientific.
- Villmann, T., Körner, A., and Albani, C. (1998c). Evolutionary algorithms with self-organizing population dynamic for clustering of categories in psychotherapy research using large clinical data sets. In *Proceedings of International ICSC/IFAC Symposium on Neural Computation (NC'98)*, pages 130–136, Wien, Austria. International Computer Science Conventions Academic Press.
- Villmann, T. and Merényi, E. (2002). *Self-Organizing Neural Networks—Recent Advances and Applications*, volume 78 of *Studies in Fuzziness and Soft Computing*, chapter Extensions and Modifications of the Kohonen-SOM and Applications in Remote Sensing Image Analysis, pages 121–40. Physica-Verlag Heidelberg.
- Villmann, T., Rietz, U., Hessel, A., and Plötzner, G. (1999). Estimation of the intrinsic dimension of psychotherapy process data—a comparing study including the GSOM. In Krell, G., Michaelis, B., Nauck, D., and Kruse, R., editors, *Proceedings of International Workshop 'Neuronale Netze in der Anwendung', Magdeburg*, pages 7–16. University Magdeburg.
- Vincent, D., McCardle, J., and Stroud, R. (1995). Classification of metal transfer mode using neural networks. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume I, pages 522–525, Piscataway, NJ. IEEE Service Center.
- Vinson, D. P. and Vigliocco, G. (2002). A semantic analysis of grammatical class impairments: semantic representations of object nouns, action nouns and action verbs. *JOURNAL OF NEUROLINGUISTICS*, 15(3–5):317–351.
- Vintan, L. N. and Iridon, M. (1999). Towards a high performance neural branch predictor. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 2, pages 868–73, Piscataway, NJ. IEEE Service Center.
- Vinz, B. L. (1994). An interpolated counterpropagation approach for determining target spacecraft attitude. In *Proc. WCNN'94, World Congress on Neural Networks*, volume I, pages 686–691, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Viredaz, M. A. (1993). MANTRA I: An SIMD processor array for neural computation. In Spies, P. P., editor, *Proc. of Euro-ARCH'93, Munich*, pages 99–110, Berlin, Heidelberg. Springer.
- Visa, A. (1990a). Comparison between classical and neural networks methods in texture recognition. Report A13, Helsinki University of Technology, Laboratory of Computer and Information Science, Espoo, Finland.
- Visa, A. (1990b). Identification of stochastic textures with multiresolution features and Self-organizing maps. In *Proc. 10ICPR, International Conference on Pattern Recognition*, pages 518–522, Piscataway, NJ. IEEE, IEEE Service Center.
- Visa, A. (1990c). Stability study of Learning Vector Quantization. In *Proc. INNC'90, Int. Neural Network Conf.*, pages 729–732, Dordrecht, Netherlands. Kluwer.
- Visa, A. (1990d). Texture boundary detection based on LVQ method. In Torres, L., Masgrau, E., and Lagunes, M. A., editors, *Proc. 5th European Signal Processing Conf.*, pages 991–994, Amsterdam, Netherlands. Elsevier.
- Visa, A. (1990e). *Texture Classification and Segmentation Based on Neural Network Methods*. PhD thesis, Helsinki University of Technology, Espoo, Finland.
- Visa, A. (1990f). A texture classifier based on neural network principles. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, San Diego*, volume I, pages 491–496, Piscataway, NJ. IEEE Service Center.

- Visa, A. (1991a). Neural networks on characterisation of paper properties. In *Proc. European Res. Symp. 'Image Analysis for Pulp and Paper Res. and Production'*, Center Technique du Papier, Grenoble, France.
- Visa, A. (1991b). Texture classification and neural networks methods. In *Proc. Applications of Artificial Neural Networks II, SPIE Vol. 1469*, pages 820–831, Bellingham, WA. SPIE.
- Visa, A. (1991c). Texture classification based on neural networks. *Graphic Arts in Finland*, 20(3):7–12.
- Visa, A. (1992a). Automatic feature selection by self-organization. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks 2*, pages 803—807. Elsevier, Amsterdam, Netherlands.
- Visa, A. (1992b). Industrial applications of artificial neural networks in Finland. In *Proc. DECUS Finland ry. Spring Meeting*, pages 323–332, Helsinki, Finland. DEC Users' Society.
- Visa, A. (1992c). Topological feature map and automatic feature selection. In *Proc. of SPIE Aerospace Sensing, Vol. 1709 Science of Neural Networks*, pages 642–649, Bellingham, USA. SPIE.
- Visa, A. (1992d). Unsupervised image segmentation based on a self-organizing feature map and a texture measure,. In *Proc. 11ICPR, International Conference on Pattern Recognition*, pages 101–104, Los Alamitos, CA. IEEE Computer Society Press.
- Visa, A. (1994). Texture segmentation based on neural networks. In *Proc. 3rd International Conference on Fuzzy Logic, Neural Nets and Soft Computing*, pages 145–148, Iizuka, Japan. Fuzzy Logic Systems Institute.
- Visa, A., Iivarinen, J., Valkealahti, K., and Simula, O. (1995). Neural network based cloud classifier. In *Proc. International Conference on Artificial Neural Networks (ICANN'95), Industrial Session 14 (Remote Sensing)*.
- Visa, A. and Langinmaa, A. (1992). A texture based approach to evaluate solid print quality. In Banks, W. H., editor, *Proc. IARIGAI*, London, UK. Pentech Press.
- Visa, A., Langinmaa, A., and Lindquist, U. (1990). Comparison of stochastic textures. In *Proc. TAPPI, Int. Printing and Graphic Arts Conf.*, pages 91–97, Montreal, Canada. Canadian Pulp and Paper Assoc.
- Visa, A., Toivonen, J., Back, B., and Vanharanta, H. (2000a). Toward text understanding—classification of text documents by word map. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4057, pages 299–305, Bellingham, WA. Lappeenranta Univ of Technology, SPIE.
- Visa, A., Toivonen, J., Ruokonen, P., Vanharanta, H., and Back, B. (2000b). Knowledge discovery from text documents based on paragraph maps. In *Proceedings of the Hawaii International Conference on System Sciences Jan 4-Jan 7 2000*, page 38.
- Visa, A., Toivonen, J., Vanharanta, H., and Back, B. (2001). Prototype matching—finding meaning in the books of the bible. In *Proceedings of the Hawaii International Conference on System Sciences*, page 72.
- Visa, A., Valkealahti, K., Iivarinen, J., and Simula, O. (1994). Experiences from operational cloud classifier based on Self-Organizing Map. In Rogers, S. K. and Ruck, D. W., editors, *Proc. SPIE—The International Society for Optical Engineering, Applications of Artificial Neural Networks V*, volume 2243, pages 484–495, Bellingham, WA. SPIE.
- Visa, A., Valkealahti, K., and Simula, O. (1991). Cloud detection based on texture segmentation by neural network methods. In *Proc. IJCNN-91, International Joint Conference on Neural Networks, Singapore*, pages 1001–1006, Piscataway, NJ. IEEE Service Center.

- Visala, A., Pitkanen, H., and Halme, A. (1997). Wiener type SOM-and MLP-classifiers for recognition of dynamic modes. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 1071–6. Springer-Verlag, Berlin, Germany.
- Vishwanathan, N. and Wunsch II, D. C. (2001). ART/SOFM: A hybrid approach to the TSP. In *Proceedings of the International Joint Conference on Neural Networks*, volume 4, pages 2554–2557. Appl. Computational Intell. Lab., Dept. of Elec. and Comp. Engineering, University of Missouri—Rolla.
- Vishwanathan, S. V. N. and Murty, M. N. (2000). Kohonen's SOM with cache. *Pattern Recognition*, 33(11):1927–1929.
- Viswanathan, S., Ersoy, I., Bunyak, F., and Dagli, C. (1999). Evolving neural networks applied to predator-evader problem. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 4, pages 2394–7, Piscataway, NJ. IEEE Service Center.
- Vittoz, E., Heim, P., Arreguit, X., Krummenacher, F., and Sorouchyari, E. (1989). Analog VLSI implementation of a Kohonen map. In *Proc. Journées d'Électronique 1989, Artificial Neural Networks, Lausanne, Switzerland, October 10–12*, pages 291–301, Lausanne, Switzerland. Presses Polytechniques Romandes.
- Vleugels, J. M., Kok, J. N., and Overmars, M. H. (1993). A self-organizing neural network for robot motion planning. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 281–284, London, UK. Springer.
- Voegtlin, T. (2000). Context quantization and contextual self-organizing maps. In *Proceedings of the International Joint Conference on Neural Networks*, volume 6, pages 20–25, Piscataway, NJ. Inst des Sciences Cognitives, IEEE.
- Voegtlin, T. and Dominey, P. F. (2001). Recursive self-organising maps. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 210–5. Springer.
- Vogt, M. (1993). Combination of radial basis function neural networks with optimized learning vector quantization. In *Proc. ICNN'93, International Conference on Neural Networks*, volume III, pages 1841–1846, Piscataway, NJ. IEEE, IEEE Service Center.
- Voitovetsky, I., Guterman, H., and Cohen, A. (1997). Unsupervised speaker classification using self-organizing maps (SOM). In Principe, J., Gile, L., Morgan, N., and Wilson, E., editors, *Neural Networks for Signal Processing VII. Proceedings of the 1997 IEEE Signal Processing Society Workshop*, pages 578–87. IEEE, New York, NY, USA.
- (Voitovetsky), I. L. and Guterman, H. (2001). VQ-based clustering algorithm of piecewise-dependant-data. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 95–101. Springer.
- Vollmer, U. and Strey, A. (1999). Experimental study on the precision requirements of RBF, RPROP and BPTT training. In *ICANN99. Ninth International Conference on Artificial Neural Networks (IEE Conf. Publ. No.470)*, volume 1, pages 239–44, London, UK. IEE.
- Volmer, R. and Lehrbass, F. B. (1997). Kohonen's self-organizing maps and the future of the DAX. *Wirtschaftsinformatik*, 39(4):339–44.
- Vonk, E., Veelenturf, L. P. J., and Jain, L. C. (1996). Neural networks: implementations and applications. *IEEE Aerospace and Electronics Systems Magazine*, 11(7):11–16.
- Voukydis, P. C. (1995). A neural network system for detection of life-threatening arrhythmias, based on Kohonen networks. In *Computers in Cardiology 1995*, pages 165–7. IEEE, New York, NY, USA.

- Vrieze, O. J. (1995). Kohonen network. In Braspenning, P. J., Thuijsman, F., and Weijters, A. J. M. M., editors, *Artificial Neural Networks. An Introduction to ANN Theory and Practice*, pages 83–100, Berlin, Germany. Dept. of Math. , Limburg Univ. , Maastricht, Netherlands, Springer.
- Vuori, J. and Kohonen, T. (1995). Fast DSP implementation of high-dimensional vector classifiers. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume IV, pages 2019–2022, Piscataway, NJ. IEEE Service Center.
- Vuori, V., Laaksonen, J., and Kangas, J. (2002). Influence of erroneous learning samples on adaptation in on-line handwriting recognition. *Pattern Recognition*, 35(4):915–925.
- Vuori, V., Laaksonen, J., Oja, E., and Kangas, J. (1999). On-line adaptation in recognition of handwritten alphanumeric characters. In *Proceedings of the Fifth International Conference on Document Analysis and Recognition. ICDAR '99*, pages 792–5, Los Alamitos, CA, USA. IEEE Computer Society.
- Vuorimaa, P. (1994a). Fuzzy self-organizing map. *Fuzzy Sets and Systems*, 66(2):223–231.
- Vuorimaa, P. (1994b). A model based neuro-fuzzy controller. In Carlsson, C., Järvi, T., and Reponen, T., editors, *Proc. Conf. on Artificial Intelligence Res. in Finland*, number 12 in Conf. Proc. of Finnish Artificial Intelligence Society, pages 177–183, Helsinki, Finland. Finnish Artificial Intelligence Society.
- Vuorimaa, P. (1994c). Use of a default rule in fuzzy self-organizing map. In Wang, P. P., editor, *Advances in Fuzzy Theory and Technology*, pages 219–232. Duke University, Durham, North Carolina.
- Vuorimaa, P. (1994d). Use of the fuzzy self-organizing map in pattern recognition. In *Proceedings of the Third IEEE Conference on Fuzzy Systems. IEEE World Congress on Computational Intelligence*, volume 2, pages 798–801, New York, NY, USA. Signal Process. Lab. , Tampere Univ. of Technol. , Finland, IEEE.
- Vuorimaa, P., Jukarainen, T., and Karpanoja, E. (1995). A neuro-fuzzy system for chemical agent detection. *IEEE Transactions on Fuzzy Systems*, 3(04):415–24.
- Vuurpijl, L., Schouten, T., and Vytopil, J. (1994). A scalable performance prediction method for parallel neural network simulations. In Gentzsch, W. and Harms, U., editors, *High-Performance Computing and Networking. International Conference and Exhibition Proceedings. Vol. 1: Applications*, pages 396–401, Berlin, Germany. Nijmegen Univ. , Netherlands, Springer-Verlag.
- Vuurpijl, L., Schouten, T., and Vytopil, J. (1995). Performance prediction of large MIMD systems for parallel neural network simulations. *Future Generation Computer Systems*, 11(2):221–32.
- Wacquant, S., Joublin, F., and Debrie, R. (1994). Galien: a simulation environment for modular neural networks. In Pace, D. K. and Fayek, A. M., editors, *Proceedings of the 1994 Summer Computer Simulation Conference. Twenty-Sixth Annual Summer Computer Simulation Conference*, pages 211–16, San Diego, CA, USA. LCIA, Inst. Nat. des Sci. Appliques, Rouen, France, SCS.
- Wagatsuma, H. and Yamaguchi, Y. (1999). A neural network model self-organizing a cognitive map using theta phase precession. In *IEEE SMC'99 Conference Proceedings. 1999 IEEE International Conference on Systems, Man, and Cybernetics.*, volume 3, pages 199–204, Piscataway, NJ. IEEE Service Center.
- Waizumi, Y., Kato, N., Saruta, K., and Nemoto, Y. (2000). High speed and high accuracy rough classification for handwritten characters using hierarchical learning vector quantization. *IEICE Transactions on Information and Systems*, E83-D(6):1282–1290.

- Waldemark, J. (1996). An automated procedure for cluster analysis of multivariate satellite data. In *Solving Engineering Problems with Neural Networks. Proceedings of the International Conference on Engineering Applications of Neural Networks (EANN'96)*. Syst. Eng. Assoc, Turku, Finland, volume 1, pages 237–40.
- Waldemark, J. (1997). An automated procedure for cluster analysis of multivariate satellite data. *International Journal of Neural Systems*, 8(1):3–15.
- Waldemark, J., Dovner, P., and Karlsson, J. (1995a). *Neural network detection system for lower-hybrid cavities in electron plasma density measured by the FREJA satellite*.
- Waldemark, J., Dovner, P.-O., and Karlsson, J. (1995b). Hybrid neural network pattern recognition system for satellite measurements. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume I, pages 195–199, Piscataway, NJ. IEEE Service Center.
- Waldron, M. B. and Kim, S. (1994). Increasing manual sign recognition vocabulary through relabelling. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2885–2889, Piscataway, NJ. IEEE Service Center.
- Waldron, M. B. and Kim, S. (1995). Isolated ASL sign recognition system for deaf persons. *IEEE Transactions on Rehabilitation Engineering*, 3(3):261–71.
- Walker, A., Hallam, J., and Willshaw, D. (1993). Bee-havior in a mobile robot: The construction of a self-organized cognitive map and its use in robot navigation within a complex, natural environment. In *Proc. ICNN'93, International Conference on Neural Networks*, volume III, pages 1451–1456, Piscataway, NJ. IEEE Service Center.
- Walker, A. J., Cross, S. S., and Harrison, R. F. (1999). Visualization of biomedical datasets by use of growing cell structure networks: a novel diagnostic classification technique. *The Lancet*, 354:1518–1521.
- Walker, C. G. H. (1996). Analysis of multispectral microscope images using neural networks. *Surface and Interface Analysis*, 24:173–180.
- Walker, N. P., Eglen, S. J., and Lawrence, B. A. (1994). Image compression using neural networks. *GEC Journal of Research Incorporating the Marconi Review and the Plessey Research Review*, 11(2):66–75.
- Walley, W. J., Martin, R. W., and MA, O. (2000). Self-organising maps for the classification and diagnosis of river quality from biological and environmental data. In *Environmental Software Systems. Environmental Information and Decision Support. IFIP TC5 WG5.11. 3rd International Symposium*. Kluwer Academic Publishers, Norwell, MA, USA, pages 27–41.
- Walley, W. J. and O'Connor, M. A. (2001). Unsupervised pattern recognition for the interpretation of ecological data. *ECOLOGICAL MODELLING*, 146(1–3):219–230.
- Walter, J., Arnrich, B., and Scheering, C. (2000a). Learning fine positioning of a robot manipulator based on gabor wavelets. In *Proceedings of the International Joint Conference on Neural Networks*, volume 5, pages 137–142, Piscataway, NJ. Univ of Bielefeld, IEEE.
- Walter, J., Nölker, C., and Ritter, H. (2000b). The PSOM algorithm and applications. In Bothe, H. and Rojas, R., editors, *Proceeding of the ICSC Symposia on Neural Computation (NC'2000) May 23-26, 2000 in Berlin, Germany*. University of Bielefeld, Department of Computer Science, ICSC Academic Press.
- Walter, J. and Ritter, H. (1995). Local PSOMs and Chebyshev PSOMs improving the parametrised self-organizing maps. In Fogelman-Soulé, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume I, pages 95–102, Nanterre, France. EC2.

- Walter, J. and Ritter, H. (1996a). Associative completion and investment learning using PSOMs. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 157–64. Springer-Verlag, Berlin, Germany.
- Walter, J. and Ritter, H. (1996b). Investment learning with hierarchical PSOMs. In Touretzky, D. S., Mozer, M. C., and Hasselmo, M. E., editors, *Advances in Neural Information Processing 8. Proceedings of the 1995 Conference*, pages 570–6. MIT Press, Cambridge, MA, USA.
- Walter, J., Ritter, H., and Schulten, K. (1990). Non-linear prediction with self-organizing maps. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, San Diego*, volume 1, pages 589–594. IEEE Service Center, Piscataway, NJ.
- Walter, J. A., Martinetz, T. M., and Schulten, K. J. (1991). Industrial robot learns visuo-motor coordination by means of 'neural gas' network. In Kohonen, T., Mäkitara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume I, pages 357–364, Amsterdam, Netherlands. North-Holland.
- Walter, J. A. and Schulten, K. I. (1993). Implementation of self-organizing neural networks for visuo-motor control of an industrial robot. *IEEE Transactions on Neural Networks*, 4(1):86–96.
- Wan, H. B., Song, Y. H., and Johns, A. T. (1996). Identification of voltage weak buses/areas using neural network based classifier. In de Sario, M., Maione, B., Pugliese, P., and Savino, M., editors, *MELECON '96. 8th Mediterranean Electrotechnical Conference. Industrial Applications in Power Systems, Computer Science and Telecommunications. Proceedings*, volume 3, pages 1482–5. IEEE, New York, NY, USA.
- Wan, W. and Fraser, D. (1993a). M2dSOMAP: Clustering and classification of remotely sensed imagery by combining multible Kohonen self-organizing maps and associative memory. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2464–2467, Piscataway, NJ. JNNS, IEEE Service Center.
- Wan, W. and Fraser, D. (1993b). A self-organising neural network for contextual analysis of spatial patterns of multisource data. In Fung, K. K. and Ginige, A., editors, *Conference Proceedings DICTA-93 Digital Image Computing: Techniques and Applications*, volume 1, pages 71–8. Australian Pattern Recognition Soc, Broadway, NSW, Australia.
- Wan, W. and Fraser, D. (1994a). A self-organizing map model for spatial and temporal contextual classification. In *IGARSS '94. International Geoscience and Remote Sensing Symposium. Surface and Atmospheric Remote Sensing: Technologies, Data Analysis and Interpretation*, volume 4, pages 1867–9, New York, NY, USA. Dept. of Electr. Eng, New South Wales Univ., Canberra, ACT, Australia, IEEE.
- Wan, W. and Fraser, D. (1994b). Multiple Kohonen Self-Organising Maps: Supervised and unsupervised formation, with application to remotely sensed imagery analysis. In Tsoi, A. C. and Downs, T., editors, *Proc. of 5th Australian Conf. on Neural Networks*, pages 17–20, St. Lucia, Australia. University of Queensland.
- Wan, W. and Fraser, D. (1994c). A self-organising neural network framework for high dimensional data analysis. In *Proc. 7th Australasian Remote Sensing Conference, Melborne, Australia*, pages 151–156. Remote Sensing and Photogrammetry Association Australia, Ltd.
- Wan, W. and Fraser, D. (1994d). A self-organising neural network framework for multisource data and contextual analysis. In *Proc. 7th Australasian Remote Sensing Conference, Melborne, Australia*, pages 145–150. Remote Sensing and Photogrammetry Association Australia, Ltd.
- Wan, W. and Fraser, D. (1994e). A self-organising neural network framework for unsupervised and supervised classification. In *Proc. 7th Australasian Remote Sensing Conference, Melborne, Australia*, pages 423–430. Remote Sensing and Photogrammetry Association Australia, Ltd.

- Wan, W. and Fraser, D. (1996). Spatial and temporal classification with multiple self-organising maps. In *Proceedings of the 3rd Conference on Image and signal processing for remote sensing III*, volume 2955, pages 307–314, Bellingham, WA. Society of Photo-Optical Instrumentation Engineers.
- Wan, W. and Fraser, D. (1997). An MSOM framework for multi-source fusion and spatio-temporal classification. In Stein, T. I., editor, *IGARSS'97. 1997 International Geoscience and Remote Sensing Symposium. Remote Sensing—A Scientific Vision for Sustainable Development*, volume 4, pages 1657–9. IEEE, New York, NY, USA.
- Wan, W. and Fraser, D. (1999). Multisource data fusion with multiple self-organizing maps. *IEEE Transactions on Geoscience and Remote Sensing*, 37:1344–9.
- Wan, W. and Fraser, D. (2000a). A multiple self-organizing map scheme for remote sensing classification. In *Multiple Classifier Systems. First International Workshop, MCS 2000. Proceedings (Lecture Notes in Computer Science Vol.1857)*. Springer-Verlag, Berlin, Germany, pages 300–9.
- Wan, W. J. and Fraser, D. (2000b). A multiple self-organizing map scheme for remote sensing classification. In *MULTIPLE CLASSIFIER SYSTEMS*, pages 300–309.
- Wang, A., Shen, L., and Zhao, Z. (2000a). Color tongue image segmentation using fuzzy kohonen networks and genetic algorithm. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 3962, pages 182–190, Bellingham, WA. Beijing Polytechnic Univ, SPIE.
- Wang, D. and Zilouchian, A. (1997). Solutions of kinematics of robot manipulators using a Kohonen self-organizing neural network. In Ciliz, K. and Istefanopoulos, Y., editors, *Proceedings of the 1997 IEEE International Symposium on Intelligent Control*, pages 251–5. IEEE, New York, NY, USA.
- Wang, D. D. and Xu, J. (1996). Fault detection based on evolving LVQ neural networks. In *1996 IEEE International Conference on Systems, Man and Cybernetics. Information Intelligence and Systems*, volume 1, pages 255–60. IEEE, New York, NY, USA.
- Wang, H. C., Badger, J., Kearney, P., and Li, M. (2001a). Analysis of codon usage patterns of bacterial genomes using the self-organizing map. *MOLECULAR BIOLOGY AND EVOLUTION*, 18(5):792–800.
- Wang, J., Yu, S.-Y., and Zhang, W.-J. (2000b). Design of optimal codebook using evolutionary strategy. *Journal-of-China-Institute-of-Communications*, 21:60–4.
- Wang, J., Zhu, C., Wu, C., and He, Z. (1995a). Neural network approaches to fast and low rate vector quantization. In *1995 IEEE Symposium on Circuits and Systems*, volume 1, pages 486–9, New York, NY, USA. Dept. of Radio Eng. , Southeast Univ. , Nanjing, China, IEEE.
- Wang, J.-F., Wu, C.-H., Haung, C.-C., and Lee, J.-Y. (1991a). Integrating neural nets and one-stage dynamic programming for speaker independent continuous Mandarin digit recognition. In *Proc. ICASSP-91, International Conference on Acoustics, Speech and Signal Processing*, volume I, pages 69–72, Piscataway, NJ. IEEE Service Center.
- Wang, J.-H. and Hsiao, C.-P. (1997). Representation-burden conservation network applied to learning vq (npl270). *Neural Processing Letters*, 5(3):209–17.
- Wang, J. H. and Hsiao, C. P. (1999). On disparity matching in stereo vision via a neural network framework. In *Proceedings of the National Science Council, Republic of China, Part A (Physical Science and Engineering)*, volume 23, pages 665–77.
- Wang, J. H. and Peng, C. Y. (1999). Competitive neural network scheme for learning vector quantization. *Electronics Letters*, 35(9):725–726.
- Wang, J.-H. and Peng, C.-Y. (2000). Novel self-creating neural network for learning vector quantization. *Neural Processing Letters*, 11(2):139–151.

- Wang, J. H., Peng, C. Y., and Rau, J. D. (2000c). Harmonic neural networks for on-line learning vector quantization. *IEE Proceedings: Vision, Image and Signal Processing*, 147(5):485–492.
- Wang, J. H., Rau, J. D., and Peng, C. Y. (2000d). Toward optimizing a self-creating neural network. *IEEE TRANSACTIONS ON SYSTEMS MAN AND CYBERNETICS PART B-CYBERNETICS*, 30(4):586–593.
- Wang, J. H. and Sun, W. D. (1999). Online learning vector quantization: a harmonic competition approach based on conservation network. *IEEE Transactions on Systems, Man and Cybernetics, Part B (Cybernetics)*, 29:642–53.
- Wang, L., Bridges, S. M., Boggess, L. C., and J., V. J. (2000e). Neural network classification of leaf reflectance spectra for predicting nutrient deficiency of cotton. In *Smart Engineering System Design: Neural Networks, Fuzzy Logic, Evolutionary Programming, Data Mining, and Complex Systems. Vol.10. Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2000)*. ASME, New York, NY, USA, pages 1037–43.
- Wang, L., Cheng, H. D., and Cooley, D. H. (1993). Training a neural network into a Turing machine. In Kumar, A. and Kamel, K., editors, *Sixth International Conference on Parallel and Distributed Computing Systems*, pages 399–404. Int. Soc. Comput. & Their Appl. -ISCA, Raleigh, NC, USA.
- Wang, L. and Qi, F. (2000). Adaptive FKCN method for image segmentation. *Tien Tzu Hsueh Pao/Acta Electronica Sinica*, 28(2):4–6.
- Wang, L. Z. (1993a). Winning-weighted competitive learning: A generalization of Kohonen learning. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2452–2455, Piscataway, NJ. JNNS, IEEE Service Center.
- Wang, S. (2001). Cluster analysis using a validated self-organizing method: cases of problem identification. *International-Journal-of-Intelligent-Systems-in-Accounting,-Finance-and-Management*, 10:127–38.
- Wang, S. (2002). Nonlinear pattern hypothesis generation for data mining. *Data and Knowledge Engineering*, 40(3):273–283.
- Wang, S. D. and Lee, C. J. (1999). Fingerprint recognition using directional micropattern histograms and LVQ networks. In *Proceedings 1999 International Conference on Information Intelligence and Systems*, pages 300–3, Los Alamitos, CA, USA. IEEE Computer Society Press.
- Wang, W., He, Y., Li, X., and Lu, D. (1997a). Image coding using address-dependent vector quantization based on Kohonen neural network. *Chinese Journal of Electronics*, 6(4):73–6.
- Wang, W., Li, X., and Lu, D. (1996a). Selectively tree-structured vector quantizer using Kohonen neural network. In Yuan, B. and Tang, X., editors, *ICSP '96. 1996 3rd International Conference on Signal Processing Proceedings*, volume 2, pages 1504–7. IEEE, New York, NY, USA.
- Wang, W., Li, X., and Lu, D. (1996b). Structural codebook design and address-dependent vector quantization. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2847:637–44.
- Wang, W., Zhang, G., Cai, D., and Wan, F. (1992). Image data compression using hybrid neural network. In Dorrah, H. T., editor, *Proc. Second IASTED International Conference. Computer Applications in Industry*, volume I, pages 197–200, Zurich, Switzerland. IASTED, ACTA Press.
- Wang, X., Lin, H., Lu, J., and Yahagi, T. (2001b). Detection of nonlinearly distorted m-ary QAM signals using self-organizing map. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E84-A(8):1969–1976.

- Wang, X., Lin, H., Lu, J., and Yahagi, T. (2001c). Detection of nonlinearly distorted m-ary QAM signals using self-organizing map. *IEICE-Transactions-on-Fundamentals-of-Electronics,-Communications-and-Computer-Sciences*, pages 1969–76.
- Wang, X., Zou, L., and He, Z. (1991b). A neural network approach to vector quantization codebook generation. In *Proc. China 1991 International Conference on Circuits and Systems*, volume II, pages 523–525, Piscataway, NJ. IEEE; Shenzhen Univ. , China; CIE Circuits & Syst. Soc, IEEE Service Center.
- Wang, X. D., Jin, H., Zhao, R. C., and Wu, C. M. (2001d). Texture segmentation method based on incomplete tree-structured wavelet transform and fuzzy clustering network. *Mini-Micro-Systems*, 22:325–8.
- Wang, X. D. and Zhao, R. C. (2001). New texture segmentation method based on visual perception and IFKCN. *Xibei Gongye Daxue Xuebao/Journal of Northwestern Polytechnical University*, 19(1):31–34.
- Wang, X. Z., Yoshizawa, M., Tanaka, A., Abe, K., Yambe, T., and Nitta, S. (2001e). Automatic detection and classification of abnormalities for artificial hearts using a hierarchical self-organizing map. *ARTIFICIAL ORGANS*, 25(2):150–153.
- Wang, X. Z., Yoshizawa, M., Tanaka, A., Abe, K., Yambe, T., Nitta, S.-I., Chinzei, T., Abe, Y., and Imachi, K. (2001f). Automatic monitoring system for artificial hearts using self organizing map. *ASAIO Journal*, 47(6):686–691.
- Wang, X. Z., Yoshizawa, M., Tanaka, A., Abe, K. i., Takeda, H., Yambe, T., Nitta, S. i., and Imachi, K. (1999). Automatic monitoring system for artificial hearts using self-organizing map. In *Annual International Conference of the IEEE Engineering in Medicine and Biology—Proceedings 2 (Oct 13-Oct 16 1999)*, page 756.
- Wang, Y., Adah, T., Freedman, M. T., and Mun, S. K. (1996c). MR brain image analysis by distribution learning and relaxation labeling. In Bajpai, P. K., editor, *Proceedings of the 1996 Fifteenth Southern Biomedical Engineering Conference*, pages 133–6. IEEE, New York, NY, USA.
- Wang, Y. and Adali, T. (1996). Efficient learning of standard finite normal mixtures for image quantification. In *1996 IEEE International Conference on Acoustics, Speech, and Signal Processing Conference Proceedings*, volume 6, pages 3422–5. IEEE, New York, NY, USA.
- Wang, Y., Lau, C.-M., Adali, T., Freedman, M. T., and Mun, S. K. (1997b). Quantification of MR brain image sequence by adaptive structure probabilistic self-organizing mixture. *Proceedings of the SPIE—The International Society for Optical Engineering*, 3034(pt. 1–2):150–64. (Medical Imaging 1997: Image Processing Conf. Date: 25–28 Feb. 1997 Conf. Loc: Newport Beach, CA, USA Conf. Sponsor: SPIE).
- Wang, Y. and Rong, G. (1999). A self organizing neural network based fuzzy system. *Fuzzy Sets and Systems*, 103:1–11.
- Wang, Y., Zhu, Y. S., Thakor, N. V., and Xu, Y. H. (2001g). A short-time multifractal approach for arrhythmia detection based on fuzzy neural network. *IEEE Transactions on Biomedical Engineering*, 48(9):989–995.
- Wang, Y., Zhu, Y. S., Thakor, N. V., and Xu, Y. H. (2001h). A short-time multifractal approach for arrhythmia detection based on fuzzy neural network. *IEEE-Transactions-on-Biomedical-Engineering*, 48:989–95.
- Wang, Z. (1993b). Non-greedy adaptive vector quantizers. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation. International Workshop on Artificial Neural Networks. IWANN '93 Proceedings*, pages 346–50, Berlin, Germany. Dept. of Electr. & Comput. Eng. , Waterloo Univ. , Ont. , Canada, Springer-Verlag.

- Wang, Z., Barraco, I., Ravazzotti, M., Ravera, F., and De Sanctis, S. (1995b). Fuzzy neural network for the analysis of partially occluded objects. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2424:567–78.
- Wang, Z., Guerriero, A., and De Sario, M. (1995c). Comparison of several approaches for the segmentation of texture images. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2424:580–91.
- Wang, Z., Guerriero, A., and De Sario, M. (1996d). Comparison of several approaches for the segmentation of texture images. *Pattern Recognition Letters*, 17(5):509–21.
- Wang, Z., Guerriero, A., De Sario, M., and Losito, S. (1995d). Unsupervised/supervised hybrid networks for identification of TSS-1 satellite. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2620:209–16.
- Wang, Z. and Hanson, J. V. (1993a). Cauchy Learning Vector Quantization. In *Proc. WCNN'93, World Congress on Neural Networks*, volume IV, pages 605–608, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Wang, Z. and Hanson, J. V. (1993b). Competitive learning and winning-weighted competition for optimal vector quantizer design. In Kamm, C. A., Kuhn, G. M., Yoon, B., Chellappa, R., and Kung, S. Y., editors, *Neural Networks for Processing III Proceedings of the 1993 IEEE-SP Workshop*, pages 50–9, New York, NY, USA. Dept. of Electr. & Comput. Eng. , Waterloo Univ. , Ont. , Canada, IEEE.
- Wang, Z.-Z., Hu, D.-W., and Xiao, Q.-Y. (1994). Adaptive self-organizing neural network method for tracking problems of nonlinear dynamic systems. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 2793–2796, Piscataway, NJ. IEEE Service Center.
- Wann, C.-D. and Thomopoulos, S. C. A. (1993a). Clustering with self-organizing neural networks. In *Proc. WCNN'93, World Congress on Neural Networks*, volume II, pages 545–548, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Wann, C. D. and Thomopoulos, S. C. A. (1993b). Comparative study of self-organizing neural networks. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation. International Workshop on Artificial Neural Networks. IWANN '93 Proceedings*, pages 316–21, Berlin, Germany. Dept. of Electr. & Comput. Eng. , Pennsylvania State Univ. , University Park, PA, USA, Springer-Verlag.
- Wann, C.-D. and Thomopoulos, S. C. A. (1993c). Comparative study of self-organizing neural network models. In *Proc. of the World Congress on Neural Networks*, volume II, pages 549–552, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Wann, C. D. and Thomopoulos, S. C. A. (1997). Application of self-organizing neural networks to multiradar data fusion. *Optical Engineering*, 36(3):799–813.
- Warwick, K. (1994). Neural network applications— SOM case studies. In *Adaptive Computing and Information Processing*, volume 2, pages 663–76, Uxbridge, UK. Dept. of Cybern. , Reading Univ. , UK, Unicom Seminars.
- Warwick, K. (1996). System identification using neural networks. In Friswell, M. I. and Motterhead, J. E., editors, *Identification in Engineering Systems. Proceedings of the Conference*, pages 689–701. Univ. Wales Swansea, Swansea, UK.
- Wasaki, H., Horio, Y., and Nakamura, S. (1993). A modified Hebbian algorithm for analog VLSI neural network implementation. *Trans. Inst. of Electronics, Information and Communication Engineers A*, J76-A(3):348–356. (in Japanese).
- Watanabe, H., Yamaguchi, T., and Katagiri, S. (1995). Discriminative metric design for pattern recognition. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 5, pages 3439–42. IEEE, New York, NY, USA.

- Watanabe, K. and Tzafestas, S. G. (1990). Learning algorithms for neural networks with the Kalman filters. *J. Intelligent and Robotic Systems: Theory and Applications*, 3(4):305–319.
- Watanabe, T., Kishida, K., Ishihara, K., Yamauchi, Y., and Tokutaka, H. (1998a). Application of neural networks to quantitative chemical analysis. *Journal of the Surface Science Society of Japan*, 19(2):36–43. (in Japanese).
- Watanabe, T., Kishida, S., Ishihara, K., Kawai, T., Tokutaka, T., and Fukushima, S. (1998b). Application of neural networks to chemical analysis (in Japanese). *Journal of the Surface Science Society of Japan*, 19(6):46–54.
- Watanabe, T., Kishida, S., Kawai, T., Ishihara, K., Tokutaka, H., and Fukushima, S. (1998c). Smoothing of chemical analysis data by neural networks. In *Proceedings of the Fifth International Conference on Neural Information Processing*, pages 707–709, Kitakyushu, Japan.
- Watkins, D. (1998). Discovering geographical clusters in a U.S. telecommunications company call detail records using Kohonen self organising maps. In *PADD98. Proceedings of the Second International Conference on the Practical Application of Knowledge Discovery and Data Mining*, pages 67–73. Practical Application Co. Ltd, Blackpool, UK.
- Webb, A. R. (2000). Gamma mixture models for target recognition. *Pattern Recognition*, 33(12):2045–2054.
- Weber, V. (1993a). Connectionist unifying prolog. In Albrecht, R. F., Reeves, C. R., and Steele, N. C., editors, *Artificial Neural Nets and Genetic Algorithms. Proceedings of the International Conference*, pages 213–20, Berlin, Germany. Dept. of Comput. Sci. , Hamburg Univ. , Germany, Springer-Verlag.
- Weber, V. (1993b). Unification in prolog by connectionist models. In Leong, P. and Jabri, M., editors, *Proceedings of the Fourth Australian Conference on Neural Networks (ACNN'93)*, pages 5–8supl., Sydney, NSW, Australia. Syst. Dept. of Comput. Sci. , Hamburg Univ. , Germany, Sydney Univ. Electr. Eng.
- Wedel, J. and Polani, D. (1996). Critic-based learning of actions with Self-Organizing feature maps. Technical report, Institut für Informatik, Johannes Gutenberg-Universität Mainz.
- Wehenkel, L. (1995). A statistical approach to the identification of electrical regions in power systems. In *Stockholm Power Tech International Symposium on Electric Power Engineering*, volume 5, pages 530–5. IEEE, New York, NY, USA.
- Wei, H. (2001). A SOM network model for feature extraction by hyper columns architecture of primary visual cortex. *Journal-of-Zhejiang-University*, 35:258–63.
- Wei, H.-C., Chang, Y.-C., and Wang, J.-S. (1993a). A Kohonen-based structured codebook design for image compression. In Baozong, Y., editor, *Proceedings TENCON '93. 1993 IEEE Region 10 Conference on 'Computer, Communication, Control and Power Engineering'*, volume 3, pages 426–9, New York, NY, USA. Inst. of Comput. Sci. , Nat. Tsing Hua Univ. , Hsinchu, Taiwan, IEEE.
- Wei, H.-C., Chang, Y.-C., and Wang, J.-S. (1993b). A Kohonen-based structured codebook design for image compression. *Journal of Information Science and Engineering*, 9(3):431–43.
- Wei, W., Dejun, C., and Faguan, W. (1995). The study of correlation vector quantization for image coding. *Acta Electronica Sinica*, 23(4):30–4.
- Wei, Z. (1997). The inverse kinematics for the orientation of a robot arm based on neural network. *Journal of Nanjing University of Aeronautics & Astronautics*, 29(1):46–50.
- Wei, Z. and Qiuling, D. (1997). Inverse kinematics for a 6 dof manipulator based on neural network. *Transactions of Nanjing University of Aeronautics & Astronautics*, 14(1):73–6.

- Weierich, P. and von Rosenberg, M. (1994a). Unsupervised detection of driving states with hierarchical Self-Organizing Maps. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume I, pages 246–249, London, UK. Springer.
- Weierich, P. and von Rosenberg, M. (1994b). The use of formal measures for the training of hierarchical Kohonen maps. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 612–615, Piscataway, NJ. IEEE Service Center.
- Weigang, L. and da Silva, N. C. (1999). Implementation of parallel self-organizing map to the classification of image. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 3722, pages 284–292.
- Weijters, A., Van den Bosch, A., Postma, E., and van den Herik, H. J. (1996). Avoiding overfitting in BP-SOM. In van den Herik, H. J. and Weijters, A., editors, *Proceedings of BENELEARN-96*, pages 157–166. Maastricht.
- Weijters, A., van den Bosch, A., and van den Herik, H. J. (1997a). Behavioral aspects of combining backpropagation learning and self-organizing maps. *Connection Science*, 9:235–251.
- Weijters, A., Van den Bosch, A., and Van den Herik, H. J. (1997b). Intelligible neural networks with BP-SOM. In *Proceedings of NAIC-97, the Ninth Dutch Conference on Artificial Intelligence*, pages 27–36.
- Weijters, A., Van den Bosch, A., and Van den Herik, H. J. (1998). Intelligible neural networks with BP-SOM. In *Proceedings of ECML-98*. Accepted for publication.
- Weijters, A. J. M. M. (1995). The BP-SOM architecture and learning rule. *Neural Processing Letters*, 2(6):13–16.
- Weijters, A. J. M. M. (1996). BP-SOM: A profitable cooperation. In Meyer, J. J. C. and van der Gaag, L. C., editors, *Proceedings of NAIC-96, the Eight Dutch Conference on Artificial Intelligence*, pages 381–391.
- Weijters, T. and den Bosch, A. V. (1998). Interpretable neural networks with BP-SOM. In Mira, J., del Pobil, A. P., and Ali, M., editors, *Tasks and Methods in Applied Artificial Intelligence. Proceedings of 11th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems IEA-98-AIE*, volume 2, pages 564–73. Springer-Verlag, Berlin, Germany.
- Weijters, T., van den Herik, H. J., van den Bosch, A., and Postma, E. (1997c). Avoiding overfitting with BP-SOM. In *Proceedings of IJCAI-97, the Fifteenth International Joint Conference on Artificial Intelligence*, pages 1140–1145. Morgan Kaufmann, San Francisco.
- Weinstein, J. N., Myers, T. G., Kan, Y., Paull, K. D., Zaharevitz, D. W., and van Osdol, K. W. K. W. (1995). An 'information-intensive' strategy for drug discovery at the national cancer institute: The role of neural networks. In *Proc. WCNN'95, World Congress on Neural Networks*, volume II, pages 750–753. INNS.
- Wells, P. D. and Hill, P. C. J. (1994). An adaptive layered network approach to antenna beamforming and bearing estimation. In *Extended Synopses of the Third UK/Australian International Symposium on DSP for Communication Systems*, pages 21–3. Lancaster Univ, Lancaster, UK.
- Wen, F. and Han, Z. (1992). Combined use of Kohonen's model and BP model for the calculation of energy losses in distribution systems. In *Third Biennial Symp. on Industrial Electric Power Applications*, pages 268–277, Ruston, LA, USA. Soc. Electr. Power Res. Implementation; IEEE; ISA; LES, Louisiana Tech. Univ.
- Wen, F., Willett, P., and Deb, S. (2000). Condition monitoring for helicopter data. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, volume 1, pages 224–229, Piscataway, NJ. Univ of Connecticut, IEEE.

- Wen, F., Willett, P., and Deb, S. (2001). Analysis of the westland data set. In Willett, P. K. and Kirubarajan, T., editors, *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4389, pages 204–215. Elec. and Computer Eng. Department, U-2157, University of Connecticut.
- Wen, W. X., Pang, V., and Jennings, A. (1993). Self-generating vs. self-organizing, what's different. In *Proc. ICNN'93, International Conference on Neural Networks*, volume III, pages 1469–1473, Piscataway, NJ. IEEE, IEEE Service Center.
- Werkowitz, E. B. (1991). Computer simulation of Braitenberg vehicles. Master's thesis, Air Force Inst. of Tech. , School of Engineering, Wright-Patterson AFB, OH, USA.
- Wesolowski, M. and Suchacz, B. (2001). Classification of rapeseed and soybean oils by use of unsupervised pattern-recognition methods and neural networks. *FRESENIUS JOURNAL OF ANALYTICAL CHEMISTRY*, 371(3):323–330.
- Wessels, T. and Omlin, C. W. (2000). Hybrid system for signature verification. In *Proceedings of the International Joint Conference on Neural Networks*, volume 5, pages 509–514, Piscataway, NJ. Univ of Stellenbosch, IEEE.
- West, D. (1998). An investigation of the bias/variance dilemma for neural network classification models. In *Joint Conference on Intelligent Systems 1999 (JCIS'98)*, volume 4, pages 48–51. Association for Intelligent Machinery, Inc.
- West, D. (2000). Neural network credit scoring models. *Computers and Operations Research*, 27(11):1131–1152.
- West, D. and West, V. (2000a). Improving diagnostic accuracy using a hierarchical neural network to model decision subtasks. *International Journal of Medical Informatics*, 57(1):41–55.
- West, D. and West, V. (2000b). Model selection for a medical diagnostic decision support system: a breast cancer detection case. *ARTIFICIAL INTELLIGENCE IN MEDICINE*, 20(3):183–204.
- Whittaker, A. D. and Cook, D. F. (1995). Counterpropagation neural network for modelling a continuous correlated process. *International Journal of Production Research*, 33(7):1901–10.
- Whittington, G. and Spracklen, C. T. (1991). Visualisation of artificial neural networks to assist in application development. In *IEE Colloquium on 'Neural Networks: Design Techniques and Tools' (Digest No. 037)*, pages 6/1–4, London, UK. IEE, IEE.
- Whittington, G. and Spracklen, C. T. (1992a). Automated radar behaviour analysis using hierarchical neural network architectures. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks*, 2, volume II, pages 1559–1564, Amsterdam, Netherlands. North-Holland.
- Whittington, G. and Spracklen, C. T. (1994). An efficient multiprocessor mapping algorithm for the Kohonen feature map and its derivative models. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 17–21, Piscataway, NJ. IEEE Service Center.
- Whittington, G. and Spracklen, T. (1990). The application of a neural network model to sensor data fusion. *Proc. SPIE—The International Society for Optical Engineering*, 1294:276–283.
- Whittington, G. and Spracklen, T. (1992b). Applying visualisation techniques to the development of real-world artificial neural networks applications. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1709(pt. 2):1024–33.
- Wichert, A. (1993). MTCn-nets. In *Proc. WCNN'93, World Congress on Neural Networks*, volume IV, pages 59–62, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Wiegerinck, W. and Heskes, T. (1994). On-line learning with time-correlated patterns. *Europhysics Letters*, 28(6):451–5.
- Wiemer, J., Burwick, T., and Seelen, W. (2000). Self-organized maps for visual feature representation based on natural binocular stimuli. *Biological Cybernetics*, 82(2):97–110.

- Wienke, D., Gao, N., and Hopke, P. K. (1994). Multiple site receptor modeling with a minimal spanning tree combined with a neural network. *Environ. Sci. Technol.*, 28(6):1022–1030.
- Wienke, D. and Hopke, P. K. (1994). Visual neural mapping technique for locating fine airborne particles sources. *Environ. Sci. Technol.*, 28(6):1015–1022.
- Wilde, S. A. and Curtis, K. M. (1993). A transputer based self-organizing neural network for speech synthesis parameter arbitration. In Grebe, R., Hektor, J., Hilton, S. C., Jane, M. R., and Welch, P. H., editors, *Transputer Applications and Systems '93. Proceedings of the 1993 World Transputer Congress*, pages 1242–53, Amsterdam, Netherlands. Dept. of Electr. & Electron. Eng. , Nottingham Univ. , UK, IOS Press.
- Wilfert, H. H., Voigtlander, K., and Erlich, I. (2001). Dynamic coherency identification of generators using self- organising feature maps. *CONTROL ENGINEERING PRACTICE*, 9(7):769–775.
- Wilinski, P. (1999). Neuro-Markovian modeling and segmentation of remotely sensed images. In *International Symposium on Pattern Recognition 'In Memoriam Pierre Devijver'. Royal Mil. Acad. Brussels, Belgium*, pages 72–7.
- Wilinski, P., Solaiman, B., Hillion, A., and Czarnecki, W. (1997). A multiresolution hybrid neuro-Markovian image modeling and segmentation. In Omidvar, O. and van der Smagt, P., editors, *Proceedings. International Conference on Image Processing*, volume 3, pages 951–4. Academic Press, San Diego, CA, USA.
- Willett, D., Busch, C., and Siebert, F. (1994). Fast image analysis using Kohonen maps. In *Proc. NNSP'94, IEEE Workshop on Neural Networks for Signal Processing*, pages 461–470, Piscataway, NJ. IEEE, IEEE Service Center.
- Williams, M. D. and Lake, S. (2000). Artificial neural network classification of UK hospitals using national health service indicators. In *Proceedings of the International Conference on Artificial Intelligence. IC-AI'2000. CSREA Press, Athens, GA, USA*, volume 2, pages 967–73.
- Williams, P. and Duller, A. W. G. (1993). Identification of lighting flicker sources using a neural network. In Taylor, M. and Lisboa, P., editors, *Techniques and Applications of Neural Networks*, pages 183–97, Hemel Hempstead, UK. Sch. of Electron. Eng. & Comput. Syst. , Univ. Coll. of North Wales, Bangor, UK, Ellis Horwood.
- Williamson, J. R. (2001). Self-organization of topographic mixture networks using attentional feedback. *Neural-Computation*, 13:563–93.
- Wilppu, E. (1999). *Controlling Distribution with Neural Networks*. A-11. Turku School of Economics and Business Administration.
- Wilson, C. L. (1993). Evaluation of character recognition systems. In Kamm, C. A., Kung, S. Y., Yoon, B., Chellappa, R., and Kung, S. Y., editors, *Neural Networks for Signal Processing 3—Proceedings of the 1993 IEEE Workshop*, pages 485–496, Piscataway, New Jersey, USA. IEEE, IEEE Service Center.
- Wilson, C. L. (1994). Self-organizing neural network system for trading common stocks. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 3651–3654, Piscataway, NJ. IEEE Service Center.
- Wilson, E. and Anspach, G. (1993). Neural networks for sign language translation. *Proc. of SPIE*, pages 589–599.
- Wilson, E., Anspach, G., and Company, R. (1993). Applying neural network developments to sigma language translation. In Kamm, C. A., Kung, S. Y., Yoon, B., Chellappa, R., and Kung, S. Y., editors, *Neural Networks for Signal Processing 3—Proceedings of the 1993 IEEE Workshop*, pages 301–310, Piscataway, New Jersey, USA. IEEE, IEEE Service Center.

- Winkler, S., Wunsch, P., and Hirzinger, G. (1997). A feature map approach to pose estimation based on quaternions. In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 949–54. Springer-Verlag, Berlin, Germany.
- Wirth, G., Ball, C. F., and Mlynksi, D. A. (1996). Fuzzy classification algorithms for analysis of polymer spectra. In *Proceedings of the Fifth IEEE International Conference on Fuzzy Systems. FUZZ-IEEE '96*, volume 2, pages 1339–43. IEEE, New York, NY, USA.
- Wismueller, A., Vietze, F., Dersch, D. R., Leinsinger, G. L., Pfluger, T., and Hahn, K. (1998). Automatic segmentation and volumetry of multispectral MRI data sets of the human brain by self organizing neural networks. *Radiology*, 209P:1156–1156.
- Wismuller, A., Dersch, D. R., Lipinski, B., Hahn, K., and D., A. (2000a). Hierarchical clustering of functional MRI time-series by deterministic annealing. In *Medical Data Analysis. First International Symposium, ISMDA 2000. Proceedings (Lecture Notes in Computer Science Vol. 1933)*. Springer-Verlag, Berlin, Germany, pages 49–54.
- Wismuller, A., Vietze, F., Dersch, D. R., Hahn, K., and H., R. (2000b). A neural network approach to adaptive pattern analysis—the deformable feature map. In *8th European Symposium on Artificial Neural Networks. ESANN'2000. Proceedings. D-Facto, Brussels, Belgium*, pages 189–94.
- Wismuller, A., Vietze, F., Dersch, D. R., Hahn, K., and Ritter, H. (1998). The deformable feature map—adaptive plasticity for function approximation. In Niklasson, L., Bodén, M., and Ziemke, T., editors, *Proceedings of ICANN98, the 8th International Conference on Artificial Neural Networks*, volume 1, pages 123–128. Springer, London.
- Witkosski, U., Ruping, S., Ruckert, U., Schutte, F., Beineke, S., and Grotstollen, H. (1997). System identification using selforganizing feature maps. In Leake, D. B. and Plaza, E., editors, *Fifth International Conference on Artificial Neural Networks*, pages 100–5. Springer-Verlag, Berlin, Germany.
- Wittenburg, P. and Frauenfelder, U. H. (1992). Modeling the human mental lexicon with self-organizing feature maps. In Drossaers, M. F. J. and Nijholt, A., editors, *Twente Workshop on Language Technology 3: Connectionism and Natural Language Processing*, pages 5–15, Enschede, Netherlands. Department of Computer Science, University of Twente.
- Wlitsukura, Y., Fukumi, M., and Akamatsu, N. (2000). A design of genetic fog occurrence forecasting system by using LVQ network. In *SMC 2000 Conference Proceedings. 2000 IEEE International Conference on Systems, Man and Cybernetics. ‘Cybernetics Evolving to Systems, Humans, Organizations, and their Complex Interactions’*. IEEE, Piscataway, NJ, USA, volume 3895, pages 3678–81.
- Wolf, F. and Geisel, T. (1997). Must pinwheels move during visual development? In Gerstner, W., Germond, A., Hasler, M., and Nicoud, J. D., editors, *Artificial Neural Networks—ICANN '97. 7th International Conference Proceedings*, pages 195–200. Springer-Verlag, Berlin, Germany.
- Wolfer, J., Robergé, J., and Grace, T. (1994). Robust multispectral road classification in Landsat thematic mapper imagery. In *Proc. WCNN'94, World Congress on Neural Networks*, volume I, pages 260–268, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Wolfer, J., Robergé, J., and Grace, T. (1995). Learning vector quantization vs multilayered perceptrons for classifing Landsat thematic mapper imagery. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 157–165. INNS.
- Wolkenstein, M., Hutter, H., Mittermayr, C., and Schiesser, W. (1997). Classification of SIMS images using a Kohonen network. *Analytical Chemistry*, 69(4):777–782.
- Wolters, M. (1996). A dual route neural net approach to grapheme-to-phoneme conversion. In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 233–8. Springer-Verlag, Berlin, Germany.

- Wong, K. W., Fung, C. C., and Eren, H. (1997a). A study of the use of self-organising map for splitting training and validation sets for backpropagation neural network. In Curry, G. L., Bidanda, B., and Jagdale, S., editors, *1996 IEEE TENCON Digital Signal Processing Applications Proceedings*, volume 1, pages 157–62. Inst. Ind. Eng, Norcross, GA, USA.
- Wong, K. W. and Gedeon, T. (2000). Modular signal processing model for permeability prediction in petroleum reservoir. *Neural Networks for Signal Processing—Proceedings of the IEEE Workshop*, 2:906–915.
- Wong, P. M., Wong, K. W., Fung, C. C., and Gedeon, T. D. (1997b). A neural-fuzzy technique for interpolating spatial data via the use of learning curve. In Mira, J., Moreno-Diaz, R., and Cabestany, J., editors, *Biological and Artificial Computation: From Neuroscience to Technology. International Work Conference on Artificial and Natural Neural Networks, IWANN'97. Proceedings*, pages 323–9. Springer-Verlag, Berlin, Germany.
- Wong, T., Gargour, C. S., and Batani, N. (1995). Fuzzy learning vector quantization generation of codebooks. In Gagnon, F., editor, *1995 Canadian Conference on Electrical and Computer Engineering*, volume 2, pages 1180–3, New York, NY, USA. Ecole de Technol. Superieure, Quebec Univ. , Montreal, Que. , Canada, IEEE.
- Woodland, P. C. and Smyth, S. G. (1990). An experimental comparison of connectionist and conventional classification systems on natural data. *Speech Communication*, 9(1):73–82.
- Wrighers, W., Milligan, R. A., Schulzen, K., and McCammon, J. A. (1998). Self organizing neural networks bridge the biomolecular resolution gap. *Journal of Molecular Biology*, 284:1247–1254.
- Wu, C., Chen, H.-L., and Chen, S.-C. (1997). Counter-propagation neural networks for molecular sequence classification: supervised LVQ and dynamic node allocation. *Applied Intelligence: The International Journal of Artificial Intelligence, Neural Networks, and Complex Problem-Solving Technologies*, 7(1):27–38.
- Wu, C., Polte, T., and Rehfeldt, D. (2002a). Kohonen network system for process monitoring in gas metal arc welding. *Chinese-Journal-of-Mechanical-Engineering*, 38:131–4.
- Wu, C. H., Hodges, R. E., and Wang, C. J. (1991a). Parallelizing the self-organizing feature map on multiprocessor systems. *Parallel Computing*, 17(6–7):821–832.
- Wu, C. H., Wang, J. F., Huang, C. C., and Lee, J. Y. (1991b). Speaker-independent recognition of isolated words using concatenated neural networks. *Int. J. Pattern Recognition and Artificial Intelligence*, 5(5):693–714.
- Wu, C. S., Polte, T., and Rehfeldt, D. (2000). Gas metal arc welding process monitoring and quality evaluation using neural networks. *SCIENCE AND TECHNOLOGY OF WELDING AND JOINING*, 5(5):324–328.
- Wu, C.-Y., Liu, R.-Y., Jou, I.-C., and Jye, F.-J. S. (1996a). The CMOS design of robust neural chip with the on-chip learning capability. In *1996 IEEE International Symposium on Circuits and Systems. Circuits and Systems Connecting the World, ISCAS 96*, volume 3, pages 426–9. IEEE, New York, NY, USA.
- Wu, D. and Gowdy, J. N. (1996a). K-subspaces and time-delay autoassociators for phoneme recognition. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 4, pages 1871–6. IEEE, New York, NY, USA.
- Wu, D. and Gowdy, J. N. (1996b). Shift-tolerant k-subspaces for phoneme recognition. In *1996 IEEE International Conference on Acoustics, Speech, and Signal Processing Conference Proceedings*, volume 6, pages 3378–81. IEEE, New York, NY, USA.
- Wu, D. and Linders, J. (2000). Comparison of three different methods to select feature for discriminating forest cover types using SAR imagery. *International Journal of Remote Sensing*, 21(10):2089–2099\*.

- Wu, F. H. and Ganesan, K. (1989). Comparative study of algorithms for VQ design using conventional and neural-net based approaches. In *Proc. ICASSP-89 International Conference on Acoustics, Speech and Signal Processing, Glasgow, Scotland*, pages 751–754, Piscataway, NJ. IEEE Service Center.
- Wu, F. H. and Ganesan, K. (1990). Comparative study of algorithms for VQ design using conventional and neural-net based approaches. In *Proc. Ninth Annual Int. Phoenix Conf. on Computers and Communications*, pages 263–267, Los Alamitos, CA. IEEE, IEEE Computer Society Press.
- Wu, H., Liu, Y., Ding, Y., and Zhang, X. (2002b). Application study of SOM artificial neural net in airliner fault diagnosis. *Journal-of-Nanjing-University-of-Aeronautics-&-Astronautics*, 34:31–4.
- Wu, J. and Yan, H. (1995). Combined SOM and LVQ based classifiers for handwritten digit recognition. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume VI, pages 3074–3077, Piscataway, NJ. IEEE Service Center.
- Wu, J., Yan, H., and Chalmers, A. (1994). Handwritten digit recognition using two-layer self-organizing maps. *International Journal of Neural Systems*, 5(4):357–62.
- Wu, J. M., Lee, J. Y., Tu, Y. C., and Liou, C. Y. (1991c). Diagnoses for machine vibrations based on self-organization neural network. In *Proc. IECON '91, International Conference on Industrial Electronics, Control and Instrumentation*, volume II, pages 1506–1510, Piscataway, NJ. IEEE; Soc. Instrum. & Control Eng. Japan, IEEE Service Center.
- Wu, L. and Fallside, F. (1990). The optimal gain sequence for fastest learning in connectionist vector quantiser design. In *Proc. International Conference on Spoken Language Processing*, pages 1029–1032, Tokyo, Japan. Acoustical Society of Japan.
- Wu, L. and Fallside, F. (1991). On the design of connectionst vector quantizer. *Computer Speech and Language*, 5:207–229.
- Wu, P. and Warwick, K. (1991). Dynamic coupling weights in a neural network system. In *Proc. ICANN'91, International Conference on Artificial Neural Networks*, pages 350–353, London, UK. IEE, IEE.
- Wu, P., Warwick, K., and Koska, M. (1992a). Neural network feature maps for Chinese phonemes. *Neurocomputing*, 4(1–2):109–112.
- Wu, Q., Iyengar, S. S., and Zhu, M. (2001). Web image retrieval using self-organizing feature map. *Journal of the American Society for Information Science and Technology*, 52(10):868–875.
- Wu, W., Walczak, B., Massart, D. L., Heuerding, S., Erni, F., Last, I. R., and Preddle, K. A. (1996b). Artificial neural networks in classification of NIR spectral data: design of the training set. *Chemometrics and Intelligent Laboratory Systems*, 33(1):35–46.
- Wu, Y. and Yan, P. (1999). A study on structural adapting self-organizing neural network. *Acta Electronica Sinica*, 27:55–8.
- Wu, Y. Y., Huangfu, K., Zhou, L., and Wei, W. J. (1992b). The detection theory of self-organizing feature map and its application. In *Proc. NAECON 1992, National Aerospace and Electronics Conference*, volume I, pages 108–112, Piscataway, NJ. IEEE, IEEE Service Center.
- Wuertz, R. P., Konen, W., and Behrmann, K. O. (1999). On the performance of neuronal matching algorithms. *Neural Networks*, 12(1):127–134.
- Wunstell, M., Polani, D., Uthmann, T., and Perl, J. (2001). Behavior classification with self-organizing maps. *RoboCup 2000: Robot Soccer World Cup IV (Lecture Notes in Artificial Intelligence Vol.2019)*. Springer-Verlag, Berlin, Germany; 2001; xvii+658 pp.p.108–18, pages 108–18.

- Wurtz, R. P., Konen, W., and Behrmann, K. O. (1996). How fast can neuronal algorithms match patterns? In von der Malsburg, C., von Seelen, W., Vorbruggen, J. C., and Sendhoff, B., editors, *Artificial Neural Networks—ICANN 96. 1996 International Conference Proceedings*, pages 145–50. Springer-Verlag, Berlin, Germany.
- Wyler, K. (1993). Self-organizing process mapping in a multiprocessor system. In *Proc. WCNN'93, World Congress on Neural Networks*, volume II, pages 562–566, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Xiang-Yun, Y., Fei-Hu, Q., and Jun, J. (1998). Adaptive image segmentation based on selective multiresolutional Kohonen neural network. *Journal of Infrared and Millimeter Waves*, 17(1):48–53.
- Xiangyang, X. and Changxin, F. (1995). Study on SOFM-based image vector quantization. *Acta Electronica Sinica*, 23(4):24–9.
- Xiao, R., Chandrasekar, V., Liu, H., and Gorgucci, E. (1998). Detection of rain/no rain condition on ground from radar data using a Kohonen neural network. In Stein, T. I., editor, *IGARSS '98. Sensing and Managing the Environment. 1998 IEEE International Geoscience and Remote Sensing Symposium Proceedings*, volume 1, pages 159–61. IEEE, New York, NY, USA.
- Xiaodan, W., Hua, J., and Rongchun, Z. (2000). Texture segmentation method based on incomplete tree structured wavelet transform and fuzzy kohonen clustering network. In *Proceedings of the 3rd World Congress on Intelligent Control and Automation. IEEE, Piscataway, NJ, USA*, volume 4, pages 2684–7.
- Xie, T., Chen, H., and Zhang, Y. (2000). Optimal statistical clustering for high dimensional fault sample using evolution strategies. *Tuijin Jishu/Journal of Propulsion Technology*, 21(5):34–37, 52.
- Xie, W., Li, W., and Gao, X. (1995). Fuzzy Kohonen clustering neural network trained by genetic algorithm and fuzzy competition learning. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2620:493–8.
- Xiong, Q., Hirasawa, K., Hu, J., and Murata, J. (2000). Growing RBF structures using self-organizing maps. In *Proceedings 9th IEEE International Workshop on Robot and Human Interactive Communication. IEEE RO-MAN 2000. IEEE, Piscataway, NJ, USA*, pages 107–11.
- Xu, L. (1990). Adding learning expectation into the learning procedure of self-organizing maps. *Int. J. Neural Systems*, 1(3):269–283.
- Xu, L. (1994). Multisets modeling learning: An unified theory for supervised and unsupervised learning. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 315–320, Piscataway, NJ. IEEE Service Center.
- Xu, L. (1995). A unified learning framework: Multisets modeling learning. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 35–42. INNS.
- Xu, L. (2001). An overview on unsupervised learning from data mining perspective. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 181–209. Springer.
- Xu, L., Krzyżak, A., and Oja, E. (1992). Unsupervised and supervised classifications by rival penalized competitive learning. In *Proc. 11ICPR, International Conference on Pattern Recognition*, pages 496–499, Los Alamitos, CA. IEEE Computer Society Press.
- Xu, L., Krzyżak, A., and Oja, E. (1993). Rival penalized competitive learning for clustering analysis, RBF net, and curve detection. *IEEE Trans. on Neural Networks*, 4(4):636–649.
- Xu, L. and Oja, E. (1989). Extended self-organizing map for curve detection. Res. Report 16, Department of Information Technology, Lappeenranta, Finland.

- Xu, L. and Oja, E. (1990a). Adding top-down expectation into the learning procedure of self-organizing maps. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, Washington, DC*, volume I, pages 735–738, Piscataway, NJ. IEEE Service Center.
- Xu, L. and Oja, E. (1990b). Vector pair correspondence by a simplified counter-propagation model: a twin topographic map. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, Washington, DC*, volume II, pages 531–534, Hillsdale, NJ. Lawrence Erlbaum.
- Xu, L. and Oja, E. (1992). Further developments on RHT: Basic mechanisms, algorithms, and computational complexities. In *Proc. 11ICPR, International Conference on Pattern Recognition*, pages 125—128, Los Alamitos, CA. IEEE Computer Society Press.
- Xu, L. and Oja, E. (1993). Randomized Hough transform (RHT): basic mechanisms, algorithms, and complexities. *Computer Vision, Graphics, and Image Processing: Image Understanding*, 57:131—154.
- Xu, L., Oja, E., and Kultanen, P. (1990a). A new curve detection method: Randomized Hough Transform (RHT). *Pattern Recognition Letters*, 11:331–338.
- Xu, L., Oja, E., and Kultanen, P. (1990b). Randomized Hough transform (RHT): Theoretical analysis and extensions. Res. Report 18, Lappeenranta University of Technology, Department of Information Technology, Lappeenranta, Finland.
- Xu, M. and Kuh, A. (1995). Unsupervised learning applied to image coding. In *1995 IEEE Symposium on Circuits and Systems*, volume 3, pages 1632–5, New York, NY, USA. Dept. of Electr. Eng. , Hawaii Univ. , Honolulu, HI, USA. IEEE.
- Xu, S. and Zhang, M. (1997). A SOM network group for DOMM financial prediction system. In *1997 IEEE International Conference on Intelligent Processing Systems*, volume 1, pages 482–4. IEEE, New York, NY, USA.
- Xu, Y., En-hong, C., and Wang, X.-f. (2001). Neural network based web user behavior cluster analysis. *Mini-Micro-Systems*, 22:699–702.
- Xu, Z. M., Ivanusic, J. J., Bourke, D. W., Butler, E. G., and Horne, M. K. (1999). Automatic detection of bursts in spike trains recorded from the thalamus of a monkey performing wrist movements. *Journal of Neuroscience Methods*, 91:123–33.
- Xuan, J. and Adali, T. (1995). Learning tree-structured vector quantization for image compression. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 756–759. INNS.
- Xue, J. Q., Li, Q. B., and Zhao, Y. H. (2001). Automatic classification of stellar spectra using the SOFM method. *CHINESE ASTRONOMY AND ASTROPHYSICS*, 25(1):120–131.
- Xuemin, W., Junshi, C., Jincheng, T., and Jiapin, C. (1997). An identification algorithm for dynamic walking gait of quadruped walking robot. *Journal of Shanghai Jiaotong University*, 31(3):17–19, 23.
- Yacoub, M., Badran, F., and Thiria, S. (2001). A topological hierarchical clustering: Application to ocean color classification. In *ARTIFICIAL NEURAL NETWORKS-ICANN 2001, PROCEEDINGS*, pages 492–499.
- Yair, E., Zeger, K., and Gersho, A. (1992). Competitive learning and soft competition for vector quantizer design. *IEEE Trans. on Signal Processing*, 40(2):294–309.
- Yamada, S. and Murota, M. (1996). Applying self-organizing networks to recognizing rooms with behavior sequences of a mobile robot. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 3, pages 1790–4. IEEE, New York, NY, USA.
- Yamada, T., Hattori, M., Morisawa, M., and Ito, H. (1999). Sequential learning for associative memory using Kohonen feature map. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 3, pages 1920–3, Piscataway, NJ. IEEE Service Center.

- Yamagishi, K. (1994). Spontaneous symmetry breaking and the formation of columnar structures in the primary visual cortex. *Network: Computation in Neural Systems*, 5(1):61–73.
- Yamaguchi, T., Takagi, T., and Tanabe, M. (1991a). An intelligent sensor architecture with fuzzy associative memory system. *Trans. Inst. of Electronics, Information and Communication Engineers*, J74C-II(5):289–299. (in Japanese).
- Yamaguchi, T., Takagi, T., and Tanabe, M. (1992). An intelligent sensor architecture with fuzzy associative memory system. *Electronics and Communications in Japan, Part 2 [Electronics]*, 75(3):52–64.
- Yamaguchi, T., Tanabe, M., Kuriyama, K., and Mita, T. (1991b). Fuzzy adaptive control with an associative memory system. In *International Conference on Control '91*, volume II, pages 944–949, London, UK. IEE.
- Yamaguchi, T., Tanabe, M., Murakami, J., and Goto, K. (1991c). An adaptive control with fuzzy associative memory system. *Trans. Inst. of Electrical Engineers of Japan, Part C*, 111-C(1):40–46. (in Japanese).
- Yamaguchi, T., Tanabe, M., and Takagi, T. (1991d). Fuzzy associative memory applications to control. In Kohonen, T., Mäkisara, K., Simula, O., and Kangas, J., editors, *Artificial Neural Networks*, volume II, pages 1249–1252, Amsterdam, Netherlands. North-Holland.
- Yamakawa, T. and Horio, K. (1999a). A nonlinear control system established by self-organizing relationship (SOR) network. In Misra, J. C. and Sinha, S. B., editors, *Mathematical Modelling of Nonlinear Systems*, volume 1, pages 23–5.
- Yamakawa, T. and Horio, K. (1999b). Self-organising relationship (SOR) network. *IEICE Trans. Fundamentals*, E82-A(8):1674–77.
- Yamakawa, T., Horio, K., Izumi, S., and Miki, T. (2001a). A new method of Hough transform by using SOM with input vector transformation. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 167–72. Springer.
- Yamakawa, T., Horio, K., and Kubota, R. (2000). Modified adaptive subspace self-organizing map and its application to speaker classification. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 215–20.
- Yamakawa, T., Horio, K., and Kubota, R. (2001b). A SOM association network. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 15–20. Springer.
- Yamakawa, T., Horio, K., Oosako, Y., and Miki, T. (2001c). A new interpolation algorithm employing a self organising map. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 118–23. Springer.
- Yamakawa, T., Nakamura, M., and Uchino, E. (1997). An adaptive self organization network and it's application to a distributed temperature control system. In *13th Fuzzy Symposium (Toyama, June 4–6, 1997)*, pages 673–674. in Japanese.
- Yamakawa, T., Nakamura, M., and Uchino, E. (1998). An adaptive self organization network and it's application to a distributed control system. In Phuong, N. H. and Ohsato, A., editors, *VJ FUZZY'98: Vietnam-Japan Bilateral Symposium on Fuzzy Systems and Applications, Halong Bay, Vietnam, 30th September—2nd October, 1998*, pages 33–38.
- Yamakawa, T., Nakamura, Y., Suetake, N., and Miki, T. (1999). Independent component analysis based on marginal entropy maximization employing self-organizing maps. In *15th Fuzzy System Symposium (Osaka, June 2–5, 1999)*, pages 323–326. in Japanese.
- Yamamoto, T. (2001). Vector quantization for image compression using circular structured self-organization feature map. In *IEEE International Conference on Image Processing*, volume 2, pages 443–446. Univ. of Maryland at College Park, Dept. of Electrical and Comp. Eng.

- Yamane, K., Fujimura, K., Tokutaka, H., and Kishida, S. (1994a). The recurrent Kohonen's network for the recognition system of on-line hand-writing numeric character. Technical Report NC93-86, The Inst. of Electronics, Information and Communication Engineers, Tottori University, Koyama, Japan. (in Japanese).
- Yamane, K., Fuzimura, K., Tokimatu, H., Tokutaka, H., and Kisida, S. (1993). Classified of hand-written numeric-character using the self-organizing feature maps. Technical Report NC93-25, The Inst. of Electronics, Information and Communication Engineers, Tottori University, Koyama, Japan. (in Japanese).
- Yamane, K., Tokutaka, H., Fujimura, K., and Kishida, S. (1994b). Application of distance network to the problem classifying the clusters. Technical Report NC94-36, The Inst. of Electronics, Information and Communication Engineers, Tottori University, Koyama, Japan. (in Japanese).
- Yamauchi, K., Takeichi, M., and Ishii, N. (1999a). Restoration of images via self-organizing feature map. In *IEEE SMC'99 Conference Proceedings. 1999 IEEE International Conference on Systems, Man, and Cybernetics.*, volume 2, pages 942-7, Piscataway, NJ. IEEE Service Center.
- Yamauchi, T., Hasegawa, T., Kuroda, H., Kondoh, K., Takagi, H., Ohta, K., Okazaki, S., and Fukushima, T. (1999b). Japanese full-address recognition algorithm for carrier sequence OCR sorter. *NEC Research and Development*, 40:142-7.
- Yan, X., Chen, D., Chen, Y., and Hu, S. (2001). SOM integrated with CCA for the feature map and classification of complex chemical patterns. *Computers and Chemistry*, 25(6):597-605.
- Yáñez-Suárez, O. and Azimi-Sadjadi, M. R. (1997). Entropy-driven structural adaptation in sample-space self-organizing feature maps for pattern classification. In *Proceedings of ICNN'97, International Conference on Neural Networks*, volume I, pages 287-291. IEEE Service Center, Piscataway, NJ.
- Yanez-Suarez, O. and Azimi Sadjadi, M. R. (1999). Unsupervised clustering in hough space for identification of partially occluded objects. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 21(9):946-950.
- Yang, B., Carotta, M. C., Faglia, G., Ferroni, M., Guidi, V., Martinelli, G., Nelli, P., and Sberveglieri, G. (1997). Implementation of sensor arrays with neural networks. In Sberveglieri, G. and Tondello, E., editors, *Conference Proceedings. Vol. 54. SAA '96 National Meeting on Sensors for Advanced Applications*, pages 175-9. Italian Phys. Soc, Bologna, Italy.
- Yang, C. C., Chen, H., and Hong, K. (2002). Internet browsing: visualizing category map by fisheye and fractal views. In *Proceedings International Conference on Information Technology: Coding and Computing. IEEE Comput. Soc, Los Alamitos, CA, USA*, pages 34-9.
- Yang, C. C., Chen, H., and Hong, K. K. (1999a). Visualization tools for self-organizing maps. In *Digital 99 Libraries. Fourth ACM Conference on Digital Libraries. ACM, New York, NY, USA*, pages 258-9.
- Yang, C.-H. (2001a). Morse code recognition using learning vector quantization for persons with physical disabilities. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E84-A(1):356-362.
- Yang, H. and Dillon, T. S. (1992). Convergence of self-organizing neural algorithms. *Neural Networks*, 5(3):485-493.
- Yang, H. and Palaniswami, M. (1992). On the issue of neighborhood in self-organising maps. In Berghel, H., Deaton, E., Hedrick, G., Roach, D., and Wainwright, R., editors, *Applied Computing: Technological Challenges of the 1990's. Proceedings of the 1992 ACM/SIGAPP Symposium on Applied Computing*, pages 412-16, New York, NY, USA. La Trobe Univ. , Bundoora, Vic. , Australia, ACM.
- Yang, H. C. (2001b). Shaped-based image retrieval by spatial topology distances. In *Proceedings of the ACM International Multimedia Conference and Exhibition*, pages 38-41. Department of Information Management, Chang Jung University.

- Yang, H.-C. and Lee, C.-H. (2000a). Automatic category generation for text documents by self-organizing maps. In *Proceedings of the International Joint Conference on Neural Networks*, volume 3, pages 581–586, Piscataway, NJ. Chang Jung Univ, IEEE.
- Yang, H.-C. and Lee, C.-H. (2000b). Automatic category structure generation and categorization of chinese text documents. In *Principles of Data Mining and Knowledge Discovery. 4th European Conference, PKDD 2000. Proceedings (Lecture Notes in Artificial Intelligence Vol.1910)*. Springer-Verlag, Berlin, Germany, pages 673–8.
- Yang, H.-C. and Lee, C.-H. (2001). Automatic hypertext construction through a text mining approach by self-organizing maps. In *Advances in Knowledge Discovery and Data Mining. 5th Pacific-Asia Conference, PAKDD 2001. Proceedings (Lecture Notes in Artificial Intelligence Vol.2035)*. Springer-Verlag, Berlin, Germany, pages 108–13.
- Yang, H. S., Jegla, J. D., and Griffiths, P. R. (1998). Classification and recognition of compounds in low resolution open path FT IR spectrometry by Kohonen self organizing maps. *Fresenius' Journal of Analytical Chemistry*, 362:25–33.
- Yang, H. S., Lewis, I. R., and Griffiths, P. R. (1999b). Raman-spectrometry and neural networks for the classification of wood types—2—Kohonen self-organizing map. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 55(14):2783–2791.
- Yang, H. T. and Huang, Y. C. (1998). Intelligent decision support for diagnosis of incipient transformer faults using self organizing polynomial networks. *IEEE Transactions on Power Systems*, 13:946–952.
- Yang, H. T., Liao, C. C., and Chou, J. H. (2001a). Fuzzy learning vector quantization networks for power transformer condition assessment. *IEEE Transactions on Dielectrics and Electrical Insulation*, 8(1):143–149.
- Yang, M. H., Kriegman, D., and Ahuja, N. (2001b). Face detection using multimodal density models. *Computer-Vision-and-Image-Understanding*, 84:264–84.
- Yang, M.-H., Kriegman, D., and Ahuja, N. (2001c). Face detection using multimodal density models. *Computer Vision and Image Understanding*, 84(2):264–284.
- Yang, Z. R. (2001c). Analysing health inequalities using SOM. In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 47–53. Springer.
- Yao, K. C., Mignotte, M., Collet, C., Galerne, P., and Burel, G. (2000). Unsupervised segmentation using a self-organizing map and a noise model estimation in sonar imagery. *Pattern Recognition*, 33(9):1575–1584.
- Yasumatsu, K., Takeda, Y., Murakoshi, H., and Funakubo, N. (1999). Distributed processing system by history for load balancing. In *Control in Natural Disasters (CND'98) Proceedings volume from the IFAC Workshop*. Elsevier Sci, Kidlington, UK.
- Yasunaga, M. (1995). Fault tolerance of the self-organizing maps implemented by wafer scale integration. *Transactions of the Institute of Electronics, Information and Communication Engineers D-I*, J78D-I(12):960–71.
- Yasunaga, M., Asai, M., Shibata, K., and Yamada, M. (1992). Self-organization capability for eliminating defective neurons in neural network LSIs. *Trans. of the Inst. of Electronics, Information and Communication Engineers*, J75D-I(11):1099–1108. (in Japanese).
- Yasunaga, M. and Hachiya, I. (1996). SOM self-organizing map) implemented by wafer scale integration-its self-organizing behavior under defects. In Tewksbury, S. and Chapman, G., editors, *Proceedings of the Eighth Annual IEEE International Conference on Innovative Systems in Silicon*, pages 323–9. IEEE, New York, NY, USA.

- Yasunaga, M., Hachiya, I., and Keiji, M. (1996). Fault-tolerance evaluation of SOM self-organizing map) using a neuro-computer: MY-NEUPOWER. In Amari, S. I., Xu, L., Chan, L. W., King, I., and Leung, K. S., editors, *Progress in Neural Information Processing. Proceedings of the International Conference on Neural Information Processing*, volume 2, pages 1395–9. Springer-Verlag, Singapore.
- Yasunaga, M., Hachiya, I., Moki, K., and Kim, J. H. (1998). Fault-tolerant self-organizing map implemented by wafer-scale integration. *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, 6(2):257–65.
- Yasunaga, M., Moki, K., Kim, J. H., and Yoshihara, I. (2000). A bus-based neuro-COMputer for high speed SOM calculation and its fault tolerance against defective circuits. In *6 th International COnference on Soft Computing, IIZUKA2000, Iizuka, Fukuoka, Japan, October 1–4, 2000*, pages 264–271.
- Yasunaga, M., Tominaga, K., and Kim, J. H. (1999). Parallel self-organization map using multiple stimuli. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 2, pages 1127–30, Piscataway, NJ. IEEE Service Center.
- Yata, Y., Tokutaka, H., and Fujimura, K. (1998). Learning of simple oscillating wave form by adaptive subspace SOM. In *Proceedings of the Fifth International Conference on Neural Information Processing*, pages 1157–1159, Kitakyushu, Japan.
- Ye, H. and Lo, B. W. N. (1999). A self-classification scheme for software reuse. In *Proceedings of the Seventeenth IASTED International Conference. Applied Informatics*, pages 358–61, Anaheim, CA, USA. ACTA Press.
- Ye, H. and Lo, B. W. N. (2000a). A visualised software library: Nested self-organising maps for retrieving and browsing reusable software assets. *NEURAL COMPUTING & APPLICATIONS*, 9(4):266–279.
- Ye, H. and Lo, B. W. N. (2001). Towards a self-structuring software library. *IEE Proceedings: Software*, 148(2):45–55.
- Ye, H. L. and Lo, B. W. N. (2000b). Feature competitive algorithm for dimension reduction of the self-organizing map input space. *APPLIED INTELLIGENCE*, 13(3):215–230.
- Ye, L., Li, Z., and Dai, F. (1994). A self-tuning fuzzy controller. In *PRICAI-94. Proceedings of the 3rd Pacific Rim International Conference on Artificial Intelligence*, volume 2, pages 1083–5, Beijing, China. Dept. of Autom. , South China Univ. of Technol. , Guangzhou, China, Int. Acad. Publishers.
- Ye, S. and Shi, Z. (1994). Homotopy scheme and learning vector quantization. In *PRICAI-94. Proceedings of the 3rd Pacific Rim International Conference on Artificial Intelligence*, volume 1, pages 495–500, Beijing, China. Inst. of Comput. Technol. , Acad. Sinica, Beijing, China, Int. Acad. Publishers.
- Ye, X. and Li, Z. (1996). Edge-preserving vector quantization using neural network. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2898:210–16. (Electronic Imaging and Multimedia Systems Conf. Date: 4–5 Nov. 1996 Conf. Loc: Beijing, China Conf. Sponsor: SPIE; China Opt. & Optoelectron. Manuf. Assoc. ; Chinese Opt. Soc).
- Ye, X. and Li, Z. (1998). Hybrid neural networks for gray image recognition. In *Proceedings of the SPIE—The International Society for Optical Engineering*, volume 3561, pages 7–13.
- Yeh, J. C. H., Hamey, L. G. C., Westcott, T., and Sung, S. K. Y. (1995). Colour bake inspection system using hybrid artificial neural networks. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume I, pages 37–42, Piscataway, NJ. IEEE Service Center.
- Yen, M. M., Blackburn, M. R., and Nguyen, H. G. (1990). Feature maps based weight vectors for spatiotemporal pattern recognition with neural nets. In *Proc. IJCNN-90, International Joint Conference on Neural Networks, Washington, DC*, volume II, pages 149–155, Piscataway, NJ. IEEE; Int. Neural Network Soc, IEEE Service Center.

- Yiming, P. and ZeMin, L. (1996). Call admission control by Kohonen neural network in ATM network. *High Technology Letters*, 6(8):11–14.
- Yiming, P. and Zemin, L. (1996). Kohonen neural network based admission control in ATM telecommunication network. In Zhigang, C. A. O., editor, *ICCT'96. 1996 International Conference on Communication Technology Proceedings*, volume 2, pages 905–8. IEEE, New York, NY, USA.
- Yin, H. (2001). Visualisation induced SOM (viSOM). In Allinson, N., Yin, H., Allinson, L., and Slack, J., editors, *Advances in Self-Organising Maps*, pages 81–88. Springer.
- Yin, H. (2002). ViSOM-a novel method for multivariate data projection and structure visualization. *IEEE Transactions on Neural Networks*, 13(1):237–243.
- Yin, H. and Allinson, N. M. (1993a). On the distribution of feature space in self-organising mapping and convergence accelerating by a Kalman filter. In Mira, J., Cabestany, J., and Prieto, A., editors, *New Trends in Neural Computation*, pages 291–96, Berlin, Heidelberg. Springer.
- Yin, H. and Allinson, N. M. (1993b). Stochastic analysis and comparison of Kohonen SOM with optimal filter. In *Third International Conference on Artificial Neural Networks*, pages 182–5, London, UK. York Univ. , UK, IEE.
- Yin, H. and Allinson, N. M. (1994a). Self-organised segmentation for textured images. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1149–1152, London, UK. Springer.
- Yin, H. and Allinson, N. M. (1994b). Unsupervised segmentation of textured images using a hierarchical neural structure. *Electronics Letters*, 30(22):1842–3.
- Yin, H. and Allinson, N. M. (1995a). On the distribution and convergence of feature space in self-organizing maps. *Neural Computation*, 7(6):1178–1187.
- Yin, H. and Allinson, N. M. (1995b). Towards the optimal Bayes classifier using an extended self-organising map. In Fogelman-Soulie, F. and Gallinari, P., editors, *Proc. ICANN'95, International Conference on Artificial Neural Networks*, volume II, pages 45–49, Nanterre, France. EC2.
- Yin, H. and Allinson, N. M. (1996). An equidistortion principle constrained SOM for vector quantisation. In Amari, S. I., Xu, L., Chan, L. W., King, I., and Leung, K. S., editors, *Progress in Neural Information Processing. Proceedings of the International Conference on Neural Information Processing*, volume 1, pages 80–3. Springer-Verlag, Singapore.
- Yin, H. and Allinson, N. M. (1997a). Bayesian learning for self-organising maps. *Electronics Letters*, 33(4):304–5.
- Yin, H. and Allinson, N. M. (1997b). Comparison of a Bayesian SOM with the EM algorithm for Gaussian mixtures. In *Proceedings of WSOM'97, Workshop on Self-Organizing Maps, Espoo, Finland, June 4–6*, pages 118–123. Helsinki University of Technology, Neural Networks Research Centre, Espoo, Finland.
- Yin, H. and Allinson, N. M. (1999a). Averaging ensembles of self-organising mixture networks for density estimation. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 2, pages 1456–60, Piscataway, NJ. IEEE Service Center.
- Yin, H. and Allinson, N. M. (1999b). Interpolating self-organizing map (iSOM). *Electronics Letters*, 35(19):1649–1650.
- Yin, H. and Allinson, N. M. (2001a). Bayesian self-organising map for gaussian mixtures. *IEE Proceedings: Vision, Image and Signal Processing*, 148(4):234–240.
- Yin, H. and Allinson, N. M. (2001b). Self-organizing mixture networks for probability density estimation. *IEEE Transactions on Neural Networks*, 12(2):405–411.

- Yin, H., Lengelle, R., and Gaillard, P. (1991). Inverse-step competitive learning. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, volume I, pages 839–844, Piscataway, NJ. IEEE; Int. Neural Networks Soc, IEEE Service Center.
- Ying, W., Qiong, L., and Huang, T. S. (1999). Robust real-time human hand localization by self-organizing color segmentation. In *Proceedings International Workshop on Recognition, Analysis, and Tracking of Faces and Gestures in Real-Time Systems. In Conjunction with ICCV'99*, pages 161–6, Los Alamitos, CA, USA. IEEE Computer Society.
- Yiping, G. and Forster, B. C. (1994). Unsupervised classification of high spectral resolution images using the Kohonen self-organization neural network. *Journal of Infrared and Millimeter Waves*, 13(6):409–17.
- Ylakoski, I. (1994). Unsupervised classification of ultrasonic NDT data. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2345:182–6.
- Ylakoski, I. and Visa, A. (1993). A two-stage classifier for wooden boards. In *Proc. 8SCIA, Scand. Conf. on Image Analysis*, volume I, pages 637–641, Tromsø, Norway. NOBIM.
- Yli-Rantala, E., Ojala, T., and Vuorimaa, P. (1996a). Vector quantization of residual images using self-organizing map. In *ICNN 96. The 1996 IEEE International Conference on Neural Networks*, volume 1, pages 464–7. IEEE, New York, NY, USA.
- Yli-Rantala, E., Ojala, T., and Vuorimaa, P. (1996b). Vector quantization of residual images using self-organizing map with sample weighted training. In *Fourth European Congress on Intelligent Techniques and Soft Computing Proceedings, EUFIT '96*, volume 1, pages 325–8. Verlag Mainz, Aachen, Germany.
- Yonezu, H., Tsuji, K., Sudo, D., and Shin, J. K. (1998). Self-organizing network for feature-map formation: analog integrated circuit robust to device and circuit mismatch. *Computers & Electrical Engineering*, 24(1–2):63–73.
- Yong, H. and Zheng, T. (1997). Iterative fuzzy vector quantization and its neural net algorithm. *Proceedings of the SPIE—The International Society for Optical Engineering*, 3074:292–8. (Visual Information Processing VI Conf. Date: 21–22 April 1997 Conf. Loc: Orlando, FL, USA Conf. Sponsor: SPIE).
- Yong, L., Bin, Z., Shaowei, X., and Ming, S. Z. (1999). A self-organizing network with fuzzy hyper-ellipsoidal classifying and its application in handwritten numeral recognition. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 4, pages 2859–62, Piscataway, NJ. IEEE Service Center.
- Yoo, J.-H., Kang, B.-H., and Kim, J.-W. (1994). A clustering analysis and learning rate for self-organizing feature map. In *Proc. 3rd International Conference on Fuzzy Logic, Neural Nets and Soft Computing*, pages 79–80, Iizuka, Japan. Fuzzy Logic Systems Institute.
- Yoo, J.-H. and Oh, S.-Y. (1997). A coloring method of gray-level image using neural networks. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 1203–1206. Springer, Singapore.
- Yoon, S. H., Chung, K. W., Hong, K. S., and Park, B. C. (1994). Isolated word recognition using the SOFM-HMM and the inertia. *Journal of the Korean Institute of Telematics and Electronics*, 31B(6):17–24.
- Yoon, Y.-H., Jeon, Y.-J., and Kim, J.-C. (1998). A Kohonen network for fault diagnosis of power transformers using dissolved gas analysis. *Transactions of the Korean Institute of Electrical Engineers*, 47(6):741–5.
- Yoshida, H., Shinoh, H., and Yana, K. (1999). Phonocardiogram classification using self-organizing map with learning vector quantization. In *Annual International Conference of the IEEE Engineering in Medicine and Biology—Proceedings*, volume 2, page 929.

- Yoshida, T., Jyo, Y., and Omatu, S. (1995). Extraction of edge information by Kohonen's networks. *Bulletin of University of Osaka Prefecture, Series A*, 44(2):103–9.
- Yoshida, T. and Omatu, S. (1994). Neural network approach to land cover mapping. *IEEE Transactions on Geoscience and Remote Sensing*, 32(5):1103–9.
- Yoshihara, T. and Wada, T. (1991). Optimization by extended LVQ. In *Proc. IJCNN'91, International Joint Conference on Neural Networks*, pages 407–414.
- Yoshimura, H., Etoh, M., Kondo, K., and Yokoya, N. (2000). Gray-scale character recognition by gabor jets projection. In *Proceedings 15th International Conference on Pattern Recognition. ICPR-2000. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 2, pages 335–8.
- Yoshimura, M. and Oe, S. (1996). Texture image segmentation by genetic algorithms. In *Proceedings of 1996 IEEE International Conference on Evolutionary Computation (ICEC'96)*, pages 125–30. IEEE, New York, NY, USA.
- You, S.-J. and Choi, C.-H. (1995). LVQ with a weighted objective function. In *Proc. ICNN'95, IEEE International Conference on Neural Networks*, volume V, pages 2763–2768, Piscataway, NJ. IEEE Service Center.
- Youssefi, M. and Faez, K. (1999). Fabric handle prediction using neural networks. In *Proceedings of the IEEE-EURASIP Workshop on Nonlinear Signal and Image Processing (NSIP'99). Bogazici Univ, Istanbul, Turkey*, volume 2, pages 731–2.
- Ypma, A. and Duin, R. P. W. (1997). Novelty detection using self-organizing maps. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems*, volume 2, pages 1322–1325. Springer, London.
- Yu, D., Wang, J., and Wang, G. (2001). Leak fault identification of rocket engine using self-organizing feature map network. *Tuijin Jishu/Journal of Propulsion Technology*, 22(1):47–49.
- Yu, F. T. S. (1997). Optical implementation of artificial neural nets (ANNs). In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 1, pages 741–744. Springer, Singapore.
- Yu, F. T. S. and Lu, T. (1990). Adaptive optical system for neural computing. In *Proc. IEEE TENCON'90, 1990 IEEE Region 10 Conf. Computer and Communication Systems*, volume I, pages 59–62, Piscataway, NJ. IEEE Service Center.
- Yu, G., Russell, W., Schwartz, R., and Makhoul, J. (1990). Discriminant analysis and supervised vector quantization for continuous speech recognition. In *ICASSP-90, International Conference on Acoustics, Speech and Signal Processing*, volume II, pages 685–688, Piscataway, NJ. IEEE Service Center.
- Yu, I. K., Kim, C. I., and Song, Y. H. (2000). Industrial load forecasting using the kohonen neural network and the wavelet transform. *Proceedings of the Universities Power Engineering Conference*, page 107.
- Yu, J., Guo, Z., and Liu, Z. (1991). A new fast method for supplying measures to avoid the high voltage mode of electromagnetic voltage transformer. In El-Sharkawi, M. A. and II, R. J. M., editors, *Proc. First Int. Forum on Applications of Neural Networks to Power Systems*, pages 293–296, Piscataway, NJ. IEEE; NSF; Pugent Power & Light; EPRI, IEEE Service Center.
- Yu, J. S. and Dagli, C. H. (1993). Using self-organizing maps adaptive resonance theory (ARTMAP) for manufacturing feature recognition. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1959:452–63.

- Yu, Q., Kashiwamura, T., Shiratori, M., and Satoh, K. (1997). Reliability and structure optimization of BGA packages. In *Advances in Electronic Packaging 1997. Proceedings of the Pacific Rim/ASME International Intersociety Electronic and Photonic Packaging Conference. INTERpack '97. ASME, New York, NY, USA*, volume 2, pages 1761–5.
- Yu, W., Lu, J., Wu, J., and Guo, G. (1993). Fuzzy sets-based neural network for pattern understanding. In Baozong, Y., editor, *Proceedings TENCON '93. 1993 IEEE Region 10 Conference on 'Computer, Communication, Control and Power Engineering'*, volume 2, pages 834–40, New York, NY, USA. Dept. of Syst. & Eng. , Nat. Univ. of Defense Technol. , Hunan, China, IEEE.
- Yu, W., Yokoi, H., and Nishikawa, D. (1998). Adaptive electromyographic (EMG) prosthetic hand control using reinforcement learning. *Intelligent Autonomous Systems. IAS-5. IOS Press, Amsterdam, Netherlands; 1998; xiii+799 pp.p.266–71*, pages 266–71.
- Yuan, C. and Niemann, H. (1999). Object localization in 2D images based on Kohonen's self-organization feature maps. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 5, pages 3134–7, Piscataway, NJ. IEEE Service Center.
- Yuan, S.-T. and Chang, W.-L. (2001). Mixed-initiative synthesized learning approach for web-based CRM. *Expert Systems with Applications*, 20(2):187–200.
- Yuanda, C. and Yifeng, C. (1996). A hybrid neural network for spatio-temporal pattern recognition. *Journal of Beijing Institute of Technology*, 5(1):1–6.
- Yudong, C., Weije, X., and Nianyi, C. (1995). Discrimination of D88 structure of inter-metallic compounds by self-organization artificial neural network. *Acta Metallurgica Sinica*, 31(6):B280–3.
- Yuhua, L., Ying, S., and Yanxin, Z. (1996). Study of optical pattern recognition of 3-D multiple-targets based on multi-encoding method. *Journal of Infrared and Millimeter Waves*, 15(4):262–6.
- Yunping, C. and Bin, G. (1993). Artificial neural network and its application in control and system engineering. III. *Power System Technology*, 5:57–61.
- Zaharia, C. N. and Barbu, C. (1996). On the use of neural networks for the diagnosis and prognostic establishment in chronic hepatopathies. In Bruzzone, A. G. and Kerckhoffs, E. J. H., editors, *Simulation in Industry. 8th European Simulation Symposium. ESS'96*, volume 2, pages 73–6. SCS, Ghent, Belgium.
- Zait, M. and Messatfa, H. (1997). A comparative study of clustering methods. *Future Generation Computer Systems*, 13(2–3):149–59.
- Zamani, M. S. and Hellestrand, G. R. (1995). A new neural network approach to the floorplanning of hierarchical VLSI designs. In Mira, J. and Sandoval, F., editors, *From Natural to Artificial Neural Computation. International Workshop on Artificial Neural Networks. Proceedings*, pages 1128–34. Springer-Verlag, Berlin, Germany.
- Zamani, M. S. and Mehdipur, F. (1999a). An efficient method for placement of VLSI designs with Kohonen map. In *IJCNN'99. International Joint Conference on Neural Networks. Proceedings.*, volume 5, pages 3328–31, Piscataway, NJ. IEEE Service Center.
- Zamani, M. S. and Mehdipur, F. (1999b). Using Kohonen map for the placement of regular VLSI designs. In *Proceedings Third International Conference on Computational Intelligence and Multimedia Applications. ICCIMA'99*, pages 65–9, Los Alamitos, CA, USA. IEEE Computer Society.
- Zandhuis, J. A. (1992). Storing sequential data in self-organizing feature maps. Internal Report MPI-NL-TG-4/92, Max-Planck-Institut für Psycholinguistik, Nijmegen, Netherlands.

- Zaremba, M., Niemann, O., St-Laurent, L., and Richardson, D. (2000). Integration of self-organizing maps with spatial indexing for efficient processing of multi-dimensional data. In Li, K., Makki, K., Pissinou, N., and Ravada, S., editors, *Proceedings of the ACM Workshop on Advances in Geographic Information Systems*, pages 77–82. Departement d'informatique, Universite du Quebec.
- Zavrel, J. (1995). Neural information retrieval—an experimental study of clustering and browsing of document collections with neural networks. Master's thesis, University of Amsterdam, Amsterdam, Netherlands.
- Zavrel, J. (1996). Neural navigation interfaces for information retrieval: are they more than an appealing idea? *Artificial Intelligence Review*, 10(5–6):477–504.
- Zayas, I. Y., Chung, O. K., and Caley, M. (1995). Neural network classification and machine vision for bread crumb grain evaluation. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2597:292–308.
- Zell, A., Bayer, H., and Bauknecht, H. (1994a). Self-Organizing surfaces and volumes—an extension of the Self-Organizing Map. In *Proc. WCNN'94, World Congress on Neural Networks*, volume IV, pages 269–274, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Zell, A., Bayer, H., and Bauknecht, H. (1994b). Similarity analysis of molecules with self-organizing surfaces—an extension of the self-organizing map. In *Proc. ICNN'94, International Conference on Neural Networks*, pages 719–724, Piscataway, NJ. IEEE Service Center.
- Zell, A. and Schmalzl, M. (1994). Dynamic LVQ—a fast neural net learning algorithm. In Marinaro, M. and Morasso, P. G., editors, *Proc. ICANN'94, International Conference on Artificial Neural Networks*, volume II, pages 1095–1098, London, UK. Springer.
- Zeller, M., Wallace, K. R., and Schulten, K. (1995). Biological visuo-motor control of a pneumatic robot arm. In Dagli, C. H., Akay, M., Chen, C. L. P., Fernandez, B. R., and Ghosh, J., editors, *Intelligent Engineering Systems Through Artificial Neural Networks. Vol. 5. Fuzzy Logic and Evolutionary Programming. Proceedings of the Artificial Neural Networks in Engineering (ANNIE'95)*, pages 645–50. ASME Press, New York, NY, USA.
- Zemen, T., Clabian, M., and Pfutzner, H. (1998). Classification of sleep apnea events by means of radial basis function networks. In *Proceedings of NC 1998. International ICSC/IFAC Symposium on Neural Computation. ICSC Academic Press, Zurich, Switzerland*, pages 351–7.
- Zerr, B., Maillard, E., and Gueriot, D. (1994). Sea-floor classification by neural hybrid system. In *OCEANS 94. Oceans Engineering for Today's Technology and Tomorrow's Preservation. Proceedings*, volume 2, pages II/239–43, New York, NY, USA. STSN/GESMA, Brest Naval, France, IEEE.
- Zha, H., Onitsuka, T., and Nagata, T. (1995). Self-organization based visuo-motor coordination for a real camera and manipulator system. In *1995 IEEE International Conference on Systems, Man and Cybernetics. Intelligent Systems for the 21st Century*, volume 4, pages 3322–7, New York, NY, USA. Dept. of Comput. Sci. & Commun. Eng. , Kyushu Univ. , Fukuoka, Japan, IEEE.
- Zha, H., Onitsuka, T., and Nagata, T. (1996). Visual-motor coordination in unstructured environments: a self-organization approach. In Gill, R. and Syan, C. S., editors, *Proceedings of the Twelfth International Conference on CAD/CAM Robotics and Factories of the Future*, pages 471–7. Middlesex Univ. Press, London, UK.
- Zhang, B., Fu, M., Yan, H., and Jabri, M. A. (1999). Handwritten digit recognition by adaptive-subspace self-organizing map (ASSOM). *IEEE Transactions on Neural Networks*, 10(4):939–945.
- Zhang, B. and Grant, E. (1992). Neural network based competitive learning for control. In *Proceedings of the Fourth International Conference on Tools with Artificial Intelligence, TAI '92*, pages 236–43, Los Alamitos, CA, USA. Singapore Inst. for Stand. & Ind. Res. , Singapore, IEEE Computer Society Press.

- Zhang, B.-L. and Gedeon, T. D. (2000). A general hebbian learning for nonlinear neuron with application to laterally interconnected synergetically self-organizing map. *Australian Journal of Intelligent Information Processing Systems*, 6(2):105–9.
- Zhang, C. and Mlynksi, D. A. (1991a). Ein neuer VLSI-plazierungsalgorithmus mit neuronalem lernmodell. *GME Fachbericht*, 8:297–302.
- Zhang, C., Vogt, A., and Mlynksi, D. A. (1991a). Neuronale plazierungsalgorithmen. *Elektronik*, 15:68–72.
- Zhang, C.-X. (1993). Optimal traffic routing using Self-Organization principle. In Alspector, J., Goodman, R., and Brown, T. X., editors, *Proc. Int. Workshop on Application of Neural Networks to Telecommunications*, pages 225–231, Hillsdale, NJ. Lawrence Erlbaum.
- Zhang, C.-X. and Mlynksi, D. A. (1990). VLSI-placement with a neural network model. In *Proc. Int. Symp. on Circuits and Systems, New Orleans, Louisiana, May*, pages 475–478, Piscataway, NJ. IEEE Service Center.
- Zhang, C.-X. and Mlynksi, D. A. (1991b). Neural SOM topographic mapping for VLSI placement optimization. In *Proc. IJCNN-91, International Joint Conference on Neural Networks, Singapore*, pages 863–868, Piscataway, NJ. IEEE Service Center.
- Zhang, C.-X. and Mlynksi, D. A. (1997). Mapping and hierarchical self-organizing neural networks for VLSI placement. *IEEE Transactions on Neural Networks*, 8(2):299–314.
- Zhang, C.-X., Vogt, A., and Mlynksi, D. A. (1991b). Floorplan design using a hierarchical neural learning algorithm. In *Proc. Int. Symp. on Circuits and Systems, Singapore*, pages 2060–2063, Piscataway, NJ. IEEE Service Center.
- Zhang, G., Yu, S. Y., and Wang, J. (2001a). Design of image vector quantization using evolutionary strategy. *Journal-of-Shanghai-Jiaotong-University*, 35:205–8.
- Zhang, G.-J., Qiu, J.-J., and Li, J.-H. (2001b). Outlier identification and justification based on neural network. *Zhongguo Dianji Gongcheng Xuebao/Proceedings of the Chinese Society of Electrical Engineering*, 21(8):104–107+113.
- Zhang, H., Gong, Y., Low, C. Y., and Smoliar, S. W. (1995a). Image retrieval based on color features: an evaluation study. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2606:212–20.
- Zhang, H. X., Zhang, R. S., Liu, M. C., Hu, Z., and Fan, B. T. (2000a). Application of self-organizing maps to the visual classification of the carcinogenicity of polycyclic aromatic hydrocarbons. *CHINESE JOURNAL OF ANALYTICAL CHEMISTRY*, 28(11):1336–1343.
- Zhang, J. (1991). Dynamics and formation of self-organizing maps. *Neural Computation*, 3(1):54–66.
- Zhang, J., Ahmad, M. O., and Lynch, W. E. (1995b). Mean-gain-shape vector quantization using counterpropagation networks. In Gagnon, F., editor, *1995 Canadian Conference on Electrical and Computer Engineering*, volume 1, pages 563–6, New York, NY, USA. Dept. of Electr. & Comput. Eng. , Concordia Univ. , Montreal, Que. , Canada, IEEE.
- Zhang, J., Li, X., and Xie, W. (2000b). Stochastic competitive learning vector quantization algorithm for image coding. *Tien Tzu Hsueh Pao/Acta Electronica Sinica*, 28(10):23–26.
- Zhang, J. and Oe, S. (1997). Texture image segmentation method by usign pyramid linking and self-organizing neural network. In Kasabov, N., Kozma, R., Ko, K., O'Shea, R., Coghill, G., and Gedeon, T., editors, *Progress in Connectionist-Based Information Systems. Proceedings of the 1997 International Conference on Neural Information Processing and Intelligent Information Systems*, volume 2, pages 1191–1194. Springer, Singapore.
- Zhang, J. and Xie, W. (1999). A fast fuzzy vector quantization algorithm for image coding. *Acta Electronica Sinica*, 27:106–8.

- Zhang, Q. J., Wang, F., and Nakhla, M. S. (1995c). A high-order temporal neural network for word recognition. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 5, pages 3343–6, New York, NY, USA. Dept. of Electron. , Carleton Univ. , Ottawa, Ont. , Canada, IEEE.
- Zhang, S. (1994). Function estimation for multiple indices trend analysis using self-organizing mapping. In *ETFA '94. 1994 IEEE Symposium on Emerging Technologies and Factory Automation. (SEIKEN Symposium). Novel Disciplines for the Next Century Proceedings*, pages 160–5, New York, NY, USA. Dept. of Mech. Eng. , Concordia Univ. , Montreal, Que. , Canada, IEEE.
- Zhang, S., Ganesan, R., and Sankar, T. S. (1995d). Self-organizing neural networks for automated machinery monitoring systems. In Busnaina, A. A. and Rangan, R., editors, *Computers in Engineering—1995—and Proceedings of the 1995 Database Symposium. Presented at the 15th Annual International Computers in Engineering Conference the 9th Annual ASME Engineering Database Symposium*, pages 1001–9. ASME, New York, NY, USA.
- Zhang, S., Ganesan, R., and Sun, Y. (1995e). A new self-organizing mapping algorithm for regression problems. In *Proc. WCNN'95, World Congress on Neural Networks*, volume I, pages 747–755. INNS.
- Zhang, S., Ganesan, R., and Xistris, G. D. (1996a). Self-organising neural networks for automated machinery monitoring systems. *Mechanical Systems and Signal Processing*, 10(5):517–32.
- Zhang, S. and Sankar, T. S. (1994). Machine condition identification by SOM algorithm. In *Proc. IMACS Int. Symp. on Signal Processing, Robotics and Neural Networks*, pages 183–186, Lille, France. IMACS.
- Zhang, X. and Li, Y. (1993). Self-organizing map as a new method for clustering and data analysis. In *Proc. IJCNN-93, International Joint Conference on Neural Networks, Nagoya*, volume III, pages 2448–2451, Piscataway, NJ. JNNS, IEEE Service Center.
- Zhang, Y., Zhang, K., and Han, Z. (1995f). Detection of tool breakage in turning operations by using neural network. *Proceedings of the SPIE—The International Society for Optical Engineering*, 2620:463–7.
- Zhang, Z., Chen, H., Ye, S., and Zhao, J. (1997). Identification of e, mu , pi by neural network in bes. *High Energy Physics and Nuclear Physics*, 21(4):297–303.
- Zhang, Z. and Lu, W. (1999). ECG data compression using self-organizing feature map. *Zhongguo Shengwu Yixue Gongcheng Xuebao/Chinese Journal of Biomedical Engineering*, 18(1):97–103.
- Zhang, Z. and Sun, S. (2000a). Image data fusion algorithm based on the one-dimensional self-organizing neural network. *Tien Tzu Hsueh Pao/Acta Electronica Sinica*, 28(9):74–77.
- Zhang, Z. and Sun, S. (2000b). Image fusion based on the self-organizing feature map neural networks. In *Proceedings of SPIE—The International Society for Optical Engineering*, volume 4052, pages 270–275, Bellingham, WA. Harbin Inst of Technology, Society of Photo-Optical Instrumentation Engineers.
- Zhang, Z. and Suthaharan, S. (1997a). Neural networks in design and implementation of a neuro-fuzzy controller. In Dale, M., Kowalczyk, A., Slaviero, R., and Szymanski, J., editors, *Proceedings of the Eighth Australian Conference on Neural Networks (ACNN'97)*, pages 124–8. Telstra Res. Lab, Clayton, Vic. , Australia.
- Zhang, Z. and Suthaharan, S. (1997b). Neuro-fuzzy control and modeling in an adaptive information visualization system. In Stein, T. I., editor, *Proceedings of the 1997 IEEE International Conference on Control Applications*, pages 91–6. IEEE, New York, NY, USA.
- Zhang, Z. H., Zheng, N. N., Zhang, H. F., and Yu, H. X. (2002). Entropy-constrained generalized learning vector quantization neural network and soft competitive learning algorithm. *Acta Automatica-Sinica*, 28:244–50.

- Zhang, Z. L. and Sun, S. H. (2001). Image fusion based on the self-organizing feature map neural networks. *CHINESE JOURNAL OF ELECTRONICS*, 10(1):96–99.
- Zhang, Z. L., Sun, S. H., and Zheng, F. C. (2001c). Image fusion based on median filters and SOFM neural networks: A three-step scheme. *Signal Processing*, 81(6):1325–1330.
- Zhang, Z. P., Chen, H. F., Ye, S. W., and Zhao, J. W. (1996b). Comparison of the BP training algorithm and LVQ neural networks for e, mu, pi identification. *Nuclear Instruments & Methods in Physics Research, Section A [Accelerators, Spectrometers, Detectors and Associated Equipment]*, 379(2):271–5.
- Zhao, J. and Kulkarni, A. D. (2000). Market segmentation using self-organizing neural networks. In *Smart Engineering System Design: Neural Networks, Fuzzy Logic, Evolutionary Programming, Data Mining, and Complex Systems. Vol.10. Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE 2000)*. ASME, New York, NY, USA, pages 929–34.
- Zhao, X. and Chen, T. (2002). Type of self-organized criticality model based on neural networks. *Physical Review E. Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics*, 65(2 II):261141–261146.
- Zhao, X. and TianLun, C. (2002). Type of self-organized criticality model based on neural networks. *Physical-Review-E-(Statistical,-Nonlinear,-and-Soft-Matter-Physics)*, 65:026114.
- Zhao, Z. (1992a). Integration of neural networks and hidden Markov models for continuous speech recognition. In Aleksander, I. and Taylor, J., editors, *Artificial Neural Networks, 2*, volume I, pages 779–782, Amsterdam, Netherlands. North-Holland.
- Zhao, Z. (1992b). Weight distance display of Kohonen maps. In *Fifth International Conference. Neural Networks and their Applications. NEURO NIMES 92*, pages 611–20, Nanterre, France. Dept. of Phys. & Electron. Eng. , Keele Univ. , UK, EC2.
- Zhao, Z. (1994). Improvements to Kohonen self-organising algorithm. *Electronics Letters*, 30(6):502–3.
- Zhao, Z. and Rowden, C. (1991). Application of Kohonen self-organising feature maps to smoothing parameters of hidden Markov models for speech recognition. In *Second International Conference on Artificial Neural Networks*, pages 175–179, London, UK. IEE, IEE.
- Zhao, Z. and Rowden, C. G. (1992). Use of Kohonen self-organising feature maps for HMM parameter smoothing in speech recognition. *IEE Proc. F [Radar and Signal Processing]*, 139(6):385–390.
- Zheng, N., Zhang, Z., Zheng, H., and Gang, S. (2000). Deterministic annealing learning of the radial basis function nets for improving the regression ability of RBF networks. In *Proceedings of the IEEE-INNS-ENNS International Joint Conference on Neural Networks. IJCNN 2000. Neural Computing: New Challenges and Perspectives for the New Millennium. IEEE Comput. Soc, Los Alamitos, CA, USA*, volume 3, pages 601–7.
- Zheng, X. Z. and Ito, K. (1997). Self-organized learning and its implementation of robot movements. *Proceedings of IEEE International Conference on Systems, Man, and Cybernetics.*, 1:281–286.
- Zheng, Y. and Greenleaf, J. F. (1996). The effect of concave and convex weight adjustments on self-organizing maps. *IEEE Transactions on Neural Networks*, 7(1):87–96.
- Zheng, Y., Greenleaf, J. F., and Gisvold, J. J. (1997). Reduction of breast biopsies with a modified self-organizing map. *IEEE Transactions on Neural Networks*, 8(6):1386–96.
- Zhengkai, L. and Baoxin, L. (1994). An improvement on Kohonen's self-organizing model. *Chinese Journal of Automation*, 6(3):173–5.
- Zhernakov, S. V. (2001). Active expert systems for complex diagnosis and control of the hydromechanical devices of gas-turbine engines. *Avtomatizatsiya-i-Sovremennye-Tekhnologii. no.9; 2001; p.20–4*, pages 20–4.

- Zhou, L. and Franklin, S. (1993). ANN-TREE: a hybrid method for pattern recognition. *Proceedings of the SPIE—The International Society for Optical Engineering*, 1965:358–63.
- Zhou, R. W. and Quek, C. (1996). POPFNN: a pseudo outer-product based fuzzy neural network. *Neural Networks*, 9(9):1569–81.
- Zhou, W., Zhang, L., and Jiao, L. (2000). Association rules mining based on kohonen network. In *16th World Computer Congress 2000. Proceedings of Conference on Intelligent Information Processing. Publishing House of Electron. Ind, Beijing, China*, pages 87–90.
- Zhu, B., Ramsey, M., and Chen, H. (2000a). Creating a large-scale content-based airphoto image digital library. *IEEE Transactions on Image Processing*, 9(1):163–167.
- Zhu, B. and Zhu, Y. (1994). Speaker classification based on combined neural network and fuzzy decision. In Sheppard, N. F., J., Eden, M., and Kantor, G., editors, *Proceedings of the 16th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Engineering Advances: New Opportunities for Biomedical Engineers*, volume 2, page 1123, New York, NY, USA. Dept. of Electron. Eng. , Univ. of Sci. & Technol. of China, Hefei, China, IEEE.
- Zhu, C., Hua, Y., and Po, L. M. (1997). Optimized feature map finite-state vector quantization for image coding. In *WoSPA. Second Australian Workshop on Signal Processing Applications'97. Proceedings. Queensland Univ. Technol, Brisbane, Qld., Australia*, pages 55–8.
- Zhu, C., Li, L., Guan, C., and He, Z. (1993). A study of LVQ-based architectures for robust speech recognition. In *Proc. WCNN'93, World Congress on Neural Networks*, volume IV, pages 177–180, Hillsdale, NJ. INNS, Lawrence Erlbaum.
- Zhu, C., Po, L. M., and Hua, Y. (2000b). Optimised feature map finite-state vector quantisation for image coding. In *IEE-Proceedings- Vision,-Image-and-Signal-Processing. vol.147, no.3*, volume 147, pages 266–70.
- Zhu, C., Wang, J., and Wang, T. (1995). Analysis of learning vector quantization algorithms for pattern classification. In *1995 International Conference on Acoustics, Speech, and Signal Processing. Conference Proceedings*, volume 5, pages 3471–4. IEEE, New York, NY, USA.
- Zhu, D., Ma, S., and Qiu, H. (1994). Analysis of the convergency of topology preserving neural networks on learning. In Du, D. Z. and Zhang, X. S., editors, *Algorithms and Computation. 5th International Symposium, ISAAC '94 Proceedings*, pages 128–36, Berlin, Germany. Dept. of Comput. Sci. , Shandong Univ. , China, Springer-Verlag.
- Zhu, S. H. and Wang, F. (2000). Application of GA based on fuzzy neural network to the identification of dynamic systems. *Electric-Machines-and-Control*, 4:171–4.
- Zhuang, H. L. and Chiu, M. S. (2001). An extended self-organizing map network for modeling and control of pulse jet fabric filters. *JOURNAL OF THE AIR & WASTE MANAGEMENT ASSOCIATION*, 51(7):1035–1042.
- Zhuang, X. and Huang, Y. (1992). Optimal learning for Hopfield associative memory. In *Proc. 11th IAPR International Conference on Pattern Recognition. Vol. II. Conf. B: Pattern Recognition Methodology and Systems*, pages 397–400, Los Alamitos, CA. Int. Assoc. Pattern Recognition, IEEE Computer Society Press.
- Zia, F. and Isik, C. (1994). Neuro-fuzzy control using self-organizing neural nets. In *Proceedings of the Third IEEE Conference on Fuzzy Systems. IEEE World Congress on Computational Intelligence*, volume 1, pages 70–5, New York, NY, USA. Dept. of Electr. & Comput. Eng. , Syracuse Univ. , NY, USA, IEEE.
- Zimmer, U. R., Fischer, C., and von Puttkamer, E. (1994). Navigation on topologic feature-maps. In *Proc. 3rd International Conference on Fuzzy Logic, Neural Nets and Soft Computing*, pages 131–132, Iizuka, Japan. Fuzzy Logic Systems Institute.

- Zochowski, M. and Liebovitch, L. S. (1999). Self-organizing dynamics of coupled map systems. *Physical Review*, 59(3):2830–2837.
- Zrehen, S. (1993). Analyzing Kohonen maps with geometry. In Gielen, S. and Kappen, B., editors, *Proc. ICANN'93, International Conference on Artificial Neural Networks*, pages 609–612, London, UK. Springer.
- Zrehen, S. and Blayo, F. (1992). A geometric organization measure for Kohonen's map. In *Fifth International Conference. Neural Networks and their Applications. NEURO NIMES 92*, pages 603–10, Nanterre, France. EPFL-DI/Lab. de Microinf. , Lausanne, Switzerland, EC2.
- Zulkifli, A. H. and Meeran, S. (1999a). Decomposition and recognition of non-orthogonal interacting features using an SOFM neural network. In *7th International Conference in Central Europe on Computer Graphics, Visualization and Interactive Digital Media'99. in co-operation with EUROGRAPHICS and IFIP WG 5.10. WSCG'99. Conference Proceedings. Univ. West Bohemia, Plzen, Czech Republic*, volume 1, pages 305–12.
- Zulkifli, A. H. and Meeran, S. (1999b). Decomposition of interacting features using a Kohonen self-organizing feature map neural network. *Engineering Applications of Artificial Intelligence*, 12(1):59–78.
- Zulkifli, A. H. and Meeran, S. (1999c). Recognizing interacting features using a SOFM neural network. *Advanced Manufacturing Processes, Systems, and Technologies (AMPST 99)*, pages 267–76.
- Zupan, J. (1997). Areas where error backpropagation and Kohonen networks touch. *Abstr. Pap. Amer. Chem. Soc.*, 214:27–29.
- Zupan, J., Novic, M., and Ruisánchez, I. (1997). Kohonen and counterpropagation artificial neural networks in analytical chemistry. *Chemometrics and Intelligent Laboratory Systems*, 38:1–23.
- Zuzan, H., Holbrook, J. A., Kim, P. T., and Harauz, G. (1997). Coordinate-free self-organising feature maps [biological macromolecules]. *Ultramicroscopy*, 68(3):201–14.