5.13 Study Questions and Problems

Selected data files related to some of the problems and exercises are available at the site

www.enel.ucalgary.ca/People/Ranga/enel697

1. Give the definition of the 3×3 Sobel masks, and explain how they may be used to detect edges of any orientation in an image.

   What are the limitations of this approach to edge detection?

   What type of further processing steps could help in improving edge representation?

2. Prepare a 5×5 image with the value 10 in the central 3×3 region and the value zero in the remainder of the image.

   Calculate the results of application of the 3×3 Laplacian operator and the masks given in Section 5.2 for the detection of isolated points and lines.

   Evaluate the results in terms of the detection of edges, lines, points, and corners.