

Exercise Assignment

Definition of random geometric graph (adapted from Penrose, Oxford University Press, 2003):

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Random geometric graphs (parameters n, r) are constructed by dropping n points randomly uniformly into the unit square (or more generally according to some arbitrary specified density function on d -dimensional Euclidean space) and adding edges to connect any two points distant at most r from each other.

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Plot 2D (or 3D) geometric random graphs with the following parameters.

$n = 100, 500, 1000$

$r = 0.1d, 0.3d, 0.5d, 0.7d$, where $d =$ length of the square

- Compare the graphs. Can you see some similarities between them?
- Do they resemble biological networks (e.g. google image search: 'biological network')?