

# Octave routines for network analysis

GB

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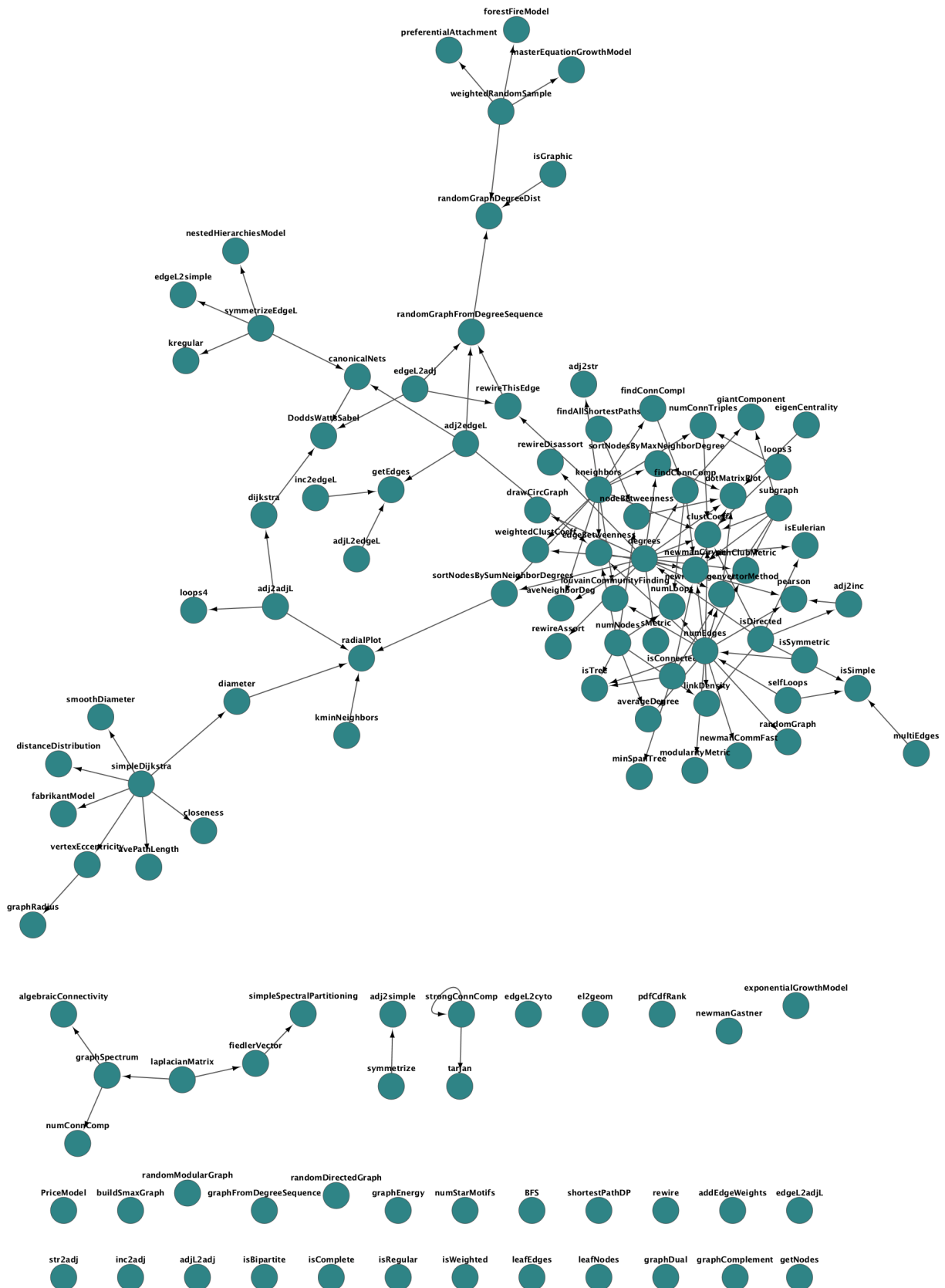


Figure 1: Graph of functional interdependencies in this toolbox. An edge points from routine A to routine B if routine A is called within routine B. For example, *isConnected.m* is called within *minSpanTree.m*

## 0 About this toolbox

(This is a copy of the [README](#) file.)

octave-networks-toolbox: A set of graph/networks analysis functions in Octave, 2012-2014

### Quick description

This is a repository of functions relevant to network/graph analysis, organized by functionality. These routines are useful for someone who wants to start hands-on work with networks fairly quickly, explore simple graph statistics, distributions, simple visualization and compute common network theory metrics.

### History

The original (2006-2011) version of these routines was written in Matlab, and is still hosted by strategic.mit.edu ([http://strategic.mit.edu/downloads.php?page=matlab\\_networks](http://strategic.mit.edu/downloads.php?page=matlab_networks)). The octave-networks-toolbox inherits the original BSD open source license and copyright, provided at the end of this file. Many of the routines might still be compatible with Matlab. For Octave/Matlab differences, see [http://en.wikibooks.org/wiki/MATLAB\\_Programming/Differences\\_between\\_Octave\\_and\\_MATLAB](http://en.wikibooks.org/wiki/MATLAB_Programming/Differences_between_Octave_and_MATLAB).

### Installation

The code currently runs on GNU Octave Version 3.4.0 with Gnuplot 4.2.5. No specific library installation necessary. Interdependencies between functions are well-documented in the function headers. The routines can be called directly from the Octave prompt, either in the same directory or from anywhere if the toolbox folder is added to the path. For example:

```
# running numNodes.m
octave-3.4.0:1> numNodes([0 1 1; 1 0 1; 1 1 0])
ans = 3
```

### Authorship

This code was originally written and posted by Gergana Bounova. It is undergoing continuous expansion and development. Thank you for the many comments and bug reports so far! Contributions via email are usually given tribute to in the function header. Collaborators are very welcome. Contact via github/email for comments, questions, suggestions, corrections or simply fork.

### Organization

The functions are organized in 11 categories: basic routines, diagnostic routines, conversion routines, centralities, distances, simple motif routines, linear algebra functions, modularity routines, graph construction models, visualization and auxiliary. These categories reflect roles/functionality and topics in the literature, but they are arbitrary, and mostly used for documentation purposes.

### Documentation

Documentation is available in this Functions Manual. The manual contains general background information, function headers, code examples, and references. For some functions, additional background, definitions or derivations are included.

### Citation

If you want to refer to this code as a citation, you can use DOI: 10.5281/zenodo.10778 (<https://zenodo.org/record/10778>).

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