Genetic regulatory networks inference: modeling, parameters estimation & model validation
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Appendix A: System Biology Toolbox review

Toolboxes

Here we give a brief overview of the contents of well-known toolboxes. The information is based on the state of affairs in 2008. For up-to-date information we refer to the webpages.

MATLAB based

http://www.mathworks.com/


The toolboxes above do not contain regression analysis, but implementing the Fisher Information matrix, confidence intervals and the correlation matrix is easy in MATLAB. Moreover, the Statistics Toolbox of MATLAB provides nonlinear least squares fitting tools including regression analysis. The SimBiology Toolbox of MATLAB contains sensitivity analysis and parameter estimation. If the Optimization Toolbox(es) are installed they are used, otherwise only simplex search can be used for unconstrained problems.
Public domain toolboxes based on MATLAB

SBToolbox [240,242]  
http://www.sbtoolbox.org/  
Only requires basic MATLAB. Box-constrained optimization. Global search methods: Simulated Annealing, SRES. Local search methods: Nelder-Mead. No regression analysis (it does contain MCA).

SSm GO toolbox [67,228]  
http://www.iim.csic.es/~gingproc/ssmGO.html  
Box-constrained global optimization using scatter search. Requires basic MATLAB. No regression analysis.

PottersWheel [166]  
http://www.potterswheel.de/  

Stand-alone public domain toolboxes

COPASI [112,235]  
http://www.copasi.org/  

SBML-PET [297]  
Global search method: SRES. No regression analysis.