Call for Papers

BioSystems Special Issue on

Evolving Gene Regulatory Networks

Motivation and Scope

Gene regulatory networks (GRNs) play a central role in the evolution and development of biological systems. Any evolutionary change in the neural and morphological structures of complex organisms depends upon reorganization of the underlying gene regulatory network. In recent years, considerable attention has been paid to developing a systems-level understanding of the structure and function of gene regulatory networks using a bioinformatics approach. One aim of this research is an evolutionary reconstruction of regulatory networks based on biological data; while in the field of computational systems biology many researchers are working on computationally evolving in silico regulatory networks to produce complex dynamics, particularly from common regulatory motifs.

This special issue aims to promote a strong interdisciplinary integration of expertise in the area of evolution of gene networks from researchers with diverse backgrounds. Topics include but are not limited to:

- Evolutionary reconstruction of GRNs based on biological data
- Knowledge incorporation in the evolutionary modeling of GRNs
- Evolution of regulatory motifs such as repressors and circadian oscillators
- Robustness and evolvability analysis of GRNs
- Modeling and analysis of metabolic pathways using evolutionary methods
- Evolving GRNs for neural and morphological development
- Evolving GRNs for self-organization of global behavior through local interactions with application to multi-agent systems or multi-robot systems
- Evolutionary developmental design of complex structures

Important Dates:

- Submission deadline: December 1, 2008 (Extended to January 1, 2009)
- Author notification: March 15, 2009
- Final version: May 15, 2009

Instructions for preparing manuscripts can be found on the journal website. All papers should be submitted on-line via the Elsevier Editorial System (http://ees.elsevier.com/bio/). Please choose “Gene Regulatory Networks” as the Article Type when you submit your paper.

Guest Editor:

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