1st Workshop on Graph Techniques for Biomedical Networks

In Conjunction with
IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2009)
Washington D.C., USA, Nov 1-4, 2009

Networks are pervasive in biomedical research. Common examples include metabolic pathways, protein interaction networks, gene regulatory networks, and other networks generated through integrative systems biology approaches. Various ontologies, such as those in the Open Biomedical Ontologies, have a directed acyclic graph structure and are also networks. The recent development in semantic web and annotation of public databases produced a collection of huge RDF (Resource Description Framework) graphs that can be used for reasoning and inferring new knowledge. The collaboration within a research community and citations among publications are two examples of social networks within the biomedical field.

The topological nature of networks makes their analysis considerably different from those designed for other data types such as sequences. There is a rich literature on graph techniques in mathematics and computer science, but their study in biomedical domain is still in its early stage and many important problems remain open. This presents a unique set of challenges and opportunities in modelling, prediction, analysis, and visualization of biomedical networks. This workshop aims to bring together people with diverse background including bioinformatics, computational biology, data mining, graph algorithms, network analysis, ontology and high-performance computing, and provide a forum for discussion and opportunity for interdisciplinary collaboration. Original research papers are solicited in, but not limited to the following topics:

- Prediction and analysis of biological networks (e.g., protein interaction networks, regulatory networks, co-expression networks, metabolic pathways, etc)
- System biology approach in data integration
- Analysis of network topologies (e.g., centrality and network motif analysis)
- Network-based data mining algorithms (e.g. protein complex prediction, tumor classification, etc)
- Network alignment and comparison algorithms
- Visualization techniques for biomedical networks
- Biomedical ontologies, especially graphical analysis for them
- Gene network control (e.g. network perturbation, stability, sensitivity)
- Evolution analysis of biological networks
- RDF graphs and reasoning
- User studies related to biomedical networks
- Collaboration, citation, and other social network analysis for biomedical community

Workshop Co-organizers

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Important Dates

Paper Submission Deadline:	August 10, 2009
Notification of Acceptance:	September 10, 2009
Final Camera-ready Paper Due:	September 17, 2009
Workshop Day:	November 1-4, 2009 (exact date TBD)