



Bioinformatics Methods for Biomedical Complex System Applications

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Luciano Milanesi (luciano.milanesi@itb.cnr.it)

ITB, National Research Council, Italy

Paolo Romano (paolo.romano@istge.it)

IST, National Cancer Research Institute, Italy



Scope and location

The main focus of NETTAB2008 will be on "Bioinformatics Methods for Biomedical Complex System Applications".

It will be organized in Milan, Italy, by CNR-ITB, in collaboration with the University of Milan and the National Cancer Research Institute of Genoa.

The composition of the scientific committee, the invited speakers and all workshop details will be available from the NETTAB website <http://www.nettab.org/>.



Why Biomedical Complex System Applications (i)

New "omics" technologies applied to molecular genetics analysis are producing huge amounts of raw data. Biomedical research laboratories are moving towards an environment, created through the sharing of resources, in which heterogeneous and complex health related data, such as molecular data (e.g. genomics, proteomics), cellular data (e.g. pathways), tissue data, population data (e.g. genotyping, SNP, epidemiology), as well as data generated by large scale analysis (e.g. Simulation data, Modelling, Systems Biology) must be taken into account.



Why Biomedical Complex System Applications (ii)

The future of biomedical scientific research will be to use massive computing data crunching applications, data grids for distributed storage of large amounts of data and to develop new approaches to the study of the medical implications of the genome-enabled medical science. Microarray, NMR, mass spectrometry, protein chips, gel electrophoresis data, Yeast-Two-Hybrid, QTL mapping, gene silencing and knockout experiments are all examples of technologies that capture thousands of data points, often in single experiments.



Why Biomedical Complex System Applications (iii)

The NETTAB2008 workshop will focus on all aspects needed to provide the framework for understanding multi-scale, complex biological systems, from the single bio-molecule to the cell, across a wide range of clinical information.

In particular, a special emphasis will be given to combine theory, experiments, informatics, and technologies for an integrative systems approach to biological research, which is becoming increasingly multidisciplinary, multidimensional, information driven.



Preliminary list of topics (i)

- **Software engineering for organic computing**
- **Bio-inspired computing**
- **Multi-agent systems and cellular automata**
- **Complex adaptive systems**
- **Self-organization in biological systems**
- **Qualitative and quantitative measurements**
- **Model-driven system development for system biology**
- **Software design methodology for adaptive systems**
- **Mathematical and experimental methods for studies of complex biological systems from intracellular level**
- **Analysis and modelling of pattern forming processes using modern statistical methods.**
- **Neuronal communication networks**
- **Biocomputing**
- **Database Integration**



Preliminary list of topics (ii)

- **Combined dry- and wet-lab studies**
- **Molecular Databases / Data Warehouses**
- **Prediction and Integration of Metabolic and Regulatory Networks**
- **Genotype - phenotype linkage**
- **Protein-Protein Interactions**
- **Microarray modelling and analyses**
- **Integrative Approaches for Drug Design**
- **GRID based bioinformatics applications**
- **HPC application for complex system simulation and analysis**
- **Identification of Gene Regulatory Networks**
- **Computational Systems Biology**
- **Computational Proteomics**
- **Optimization of Workflow for Complex Bioinformatics analysis**
- **Integrative modelling and simulation frameworks**



Foreseen deadlines

- September, 2007: Scientific Committee formed, Web site available, 1st Announcement released
- **November, 2007: Call for papers launched**
- February, 2008: Opening and invited lectures defined
- March, 2008: Tutorials submission
 - Acceptation communication: March 30, 2007
 - Tutorials documentation available: May 4, 2007
- **March, 2008: Oral communication submission**
 - Acceptation communication: April 13, 2008
 - Final version available: May 4, 2008
- April, 2008: Posters submission
- **April, 2008: Early registration**

- **May-June, 2008: Workshop and Tutorials**



We are looking forward to meeting you
at NETTAB 2008 in Milan!

<http://www.nettab.org/2008/>
info@nettab.org

luciano.milanesi@itb.cnr.it
paolo.romano@istge.it