



22nd IEEE International Symposium on COMPUTER-BASED MEDICAL SYSTEMS

SPECIAL TRACK

Healthgrid Computing - Applications to Biomedical Research and Healthcare

August 3-4 2009, Albuquerque, New Mexico, USA.

<http://sara.unile.it/cbms2009/cfp.htm>, <http://cvial.ee.ttu.edu/cbms2009/>

CALL FOR PAPERS

Bioinformatics, genomics, proteomics and medical image analysis are emerging methods in health care. Navigating between *phenotype* and *genotype* means that clinical data and genetic assessment need to be integrated in patient investigations. What is missing today is:

- full integration of methods and technologies that enhance all phases of health care, including diagnosis, prognosis, etc.;
- dissemination of such methods in clinical practice, whenever they are developed, deployed and maintained in order to positively impact patient outcomes.

Such a vision requires the design and implementation of computer tools, methods and platforms for seamless biomedical data and bioinformatics tools integration.

Main issues to realize such a vision are:

- Integration of multiple laboratories collecting genomics and post-genomics data, so that biology or bioinformatics research laboratories:
 - can continue to maintain their own biological, biomedical and computing resources autonomously;
 - can face effectively the growth of data they need to manage and process exploiting recent algorithms such as data mining taking into account that biomedical data are produced and stored continuously.
- Provision of large computing power:
 - the medical image processing community that is facing a growing need to analyse 2D, 3D, and 4D images in order to realistically simulate medical treatment or surgery (radiotherapy, plastic surgery, etc.), and to develop computer aided surgery;
 - integration of results and easy access by physicians to patients' medical data anytime, anywhere.

The Grid paradigm offers CPU and data handling capabilities, and allows users and laboratories to share their facilities (computing and data storage resources, instruments, software, knowledge, etc.) through high bandwidth networks between dynamically formed Virtual Organizations.

Healthgrid computing can be a solution for the deployment of Grids in medical research centres, taking into account that it has been very limited, until now, for a number of reasons. Cost, both in terms of infrastructure and manpower, is a significant barrier.

To face the complexity of novel, cooperative, distributed Health and Bioinformatics applications, new specialized Grid services have to be developed. Such services, integrated in a framework called Problem Solving Environment, allow deploying applications in a distributed way and carrying out complex “in silico” simulations by composing single bio-applications into manageable workflows. In such a way Grids can be deployed to address the needs of the biomedical community.

The main goal of the Conference Track is to discuss well-known and emerging bio data-intensive systems in the context of Grids, and to analyse technologies and methodologies useful to develop such systems in these environments. In particular, this Conference Track aims at offering a forum of discussion where young researchers and PhD students could present their research activities, either at an early or mature phase.

TOPICS OF INTEREST include, but are not limited to:

- Grid Infrastructures for Biomedical Data Analysis and Management
- Problem Solving Environments for Biomedical and Bioinformatics Applications
- Grid-based applications in the life sciences
- Workflow application for complex analysis processes
- High throughput for in-silico virtual screening
- Grid Computing Infrastructures, Middleware and Tools for Healthcare
- Grid Computing Biomedical Services
- Collaboration Technologies
- Databases and the Grid in the Biomedical Field
- Extracting Knowledge from Biomedical Data Grids
- Data Grids for Bioinformatics
- Grid Architectures for Interactive Biomedical Applications
- Grid Architectures and Solutions for Data-Intensive Biomedical Applications
- Grid-based Biomedical Informatics Interoperability
- Security in Biomedical Data Grids
- Semantic Grids for Multimedia Biomedical Data
- Ubiquitous Access to Grid-enabled Applications in Biomedicine
- High-performance Computing for Data-Centric Biomedical Applications
- Grid-based Visualization of Biomedical Data
- Integration of Grid-enabled Applications into Clinical Practice

IMPORTANT DATES

April 1, 2009	Submission of (6-page, maximum) paper
May 25, 2009	Notification of acceptance
June 21, 2009	Final camera-ready paper due
June 21, 2009	Pre-registration deadline

PAPER SUBMISSION AND PUBLICATION

We invite original previously unpublished contributions that are not submitted concurrently to a journal or another conference. Unlike workshops, where position papers and reports on initial and intended work are appropriate, papers selected for a Special Track should report on significant unpublished work suitable for publication as a conference paper. Each contribution must be prepared following the IEEE 2-column format

and should not exceed the length of 6 (six) Letter-size pages and submitted electronically before the paper submission deadline. All submissions including special track papers will be done electronically via the CBMS web submission system, which will be open approximately one month before the deadline. Prospective authors should choose the track: Healthgrid Computing - Applications to Biomedical Research and Healthcare title when submitting a paper. All submissions will be peer-reviewed by at least three reviewers of the Special Track Program Committee. All accepted papers will be included in the conference proceedings published by IEEE CS Press. At least one author must pay the registration fee before June 21, 2009 for each accepted paper. Please consult <http://cvial.ee.ttu.edu/cbms2009/> for further information.

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