



in conjunction with the **ACM International Symposium on High Performance Distributed Computing (HPDC)**  
June 18-19, 2012, Delft, the Netherlands

## The 3rd International Emerging Computational Methods for the Life Sciences Workshop

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### Student Program Chair

**Harry Richards**  
University of Tennessee, USA

### Important Dates

**Manuscript submission deadline: March 9, 2012**  
Acceptance notification: **March 26, 2012**  
Camera-ready paper deadline: **April 16, 2012**

## The 3<sup>rd</sup> International ECMLS Workshop

Computing systems are rapidly changing with multicore, GPUs, clusters, volunteer systems, clouds, and grids offering a confusing dazzling array of opportunities. New programming paradigms such as MapReduce and Many Task Computing have joined the traditional repertoire of workflow and parallel computing for the highest performance systems. Meanwhile the Life Sciences are continuing to expand in data generated with continuing improvement in the instruments for high throughput analysis. This “fourth paradigm” (observationally driven science) is joined by complex systems or biocomplexity that can build phenomenological models of biological systems and processes. This workshop juxtaposes these trends seeking those computational methods that will enhance scientific discovery.

The purpose of this the workshop is to provide the opportunity for researchers, scientists, engineers, and students to discuss and share the latest research in parallel and distributed high performance systems applied to Life Science problems. It aims to offer an interactive environment for investigators working on novel “computational thinking” for (Systems) Biology, Bioinformatics, Biocomplexity and Cheminformatics, so that future activities and collaborations will be initiated, as well as fostering discussions about the utilization of HPDC systems in their respective research initiatives. Selected papers will be published in a special issue of Journal Concurrency and Computation: Practice and Experience.

**Topics of interests** for this workshop include, but are not limited to:

- Applications of GPU and Multicore architectures to the life sciences
- Applications of Cloud (including MapReduce), Many Task, Grid and Parallel (High Performance) computing to the life sciences
- Performance, Algorithms, Architectures, Tools (such as workflow) and environments for the life sciences
- Data Management, Data Mining, Data Integration and Databases for the life sciences
- Data Visualization (including dimension reduction) for the life sciences
- Data Privacy and Security issues in processing and access to Life Science data
- Biocomplexity, Complex Systems, Computational Systems Biology and Computational Biomodeling
- Biostatistics, Biomedical Intelligence, Biomedical Databases & Information Systems
- Computational Life Science Applications such as Alignment, Assembly, Biomedical Imagery, Drug Discovery, Computational Genomics and Proteomics
- Text Mining, Information Extraction, and Web-mining of life science data
- Social Networking and Virtual Organization technologies for life sciences

Full and short papers accepted for emerging computational methods for the life sciences workshop 2012 will be **published by the HPDC 2012 conference proceedings** by ACM in the same volume. Selected papers will be published in a special issue of Journal Concurrency and Computation: Practice and Experience.

The papers should be prepared using the **ACM proceedings style** and no longer than 10 pages for full papers or 4 pages for short papers. Submitted papers will be carefully evaluated based on originality, significance to workshop topics, technical soundness, and presentation quality. **Submission of the paper** implies that should the paper be accepted, at least one of the authors will register and present the paper at the workshop.

### Workshop website

<http://salsahpc.indiana.edu/ECMLS2012/>