

2008 International Conference on Bioinformatics, Systems Biology and Artificial Life (BSBAL 2008)

Glasgow, UK, 22-24 July 2008

<http://siwn.org.uk/2008/BSBAL08.htm>

Online submission links: BSBAL 2008 <http://www.easychair.org/conferences/?conf=bsbal08>

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Submission Deadline

11 April 2008

Conference website

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Systems Biology is concerned with the systemic study of complex interactions in biological systems and provides a quantitative systemic approach to understanding complex biological phenomena. On the other hand, Artificial Life aims at the study of all phenomena characteristic of natural living systems, through methodologies of synthesis implemented in computational, robotic or other artificial architectures. Needless to say, the ultimate goal for the understanding and modeling of biological systems is at the synthesis and simulation of biological behaviors and functions, across which bioinformatics plays an important underpinning role. Recent progresses in bioinformatics, systems biology and artificial life are extraordinarily exciting and are calling for much broader and further deep-stretching interdisciplinary research and collaboration.

Topics of particular interest include (but not limited to) the followings.

(1) Modeling, Simulation and Analysis

- analysis/interpretation of biological mechanisms/phenomena
- computational anatomy
- computational molecular biology
- computational systems biology
- computational transcriptomics, proteomics, metabolomics
- gene identification, regulation and expression
- genotype - phenotype linkage
- identification of gene regulatory networks
- integrative modeling and simulation frameworks, articulations between multi-scale biological models
- mathematical models for biology
- metabolic control analysis
- microarray analysis
- microarray modeling and analyses
- multi-scale modeling of biological systems/networks (molecular, cellular, tissue, organism, living individual)
- multi-scale simulation of biological systems/networks/phenomena
- pathways (genetic, signaling, metabolic)
- prediction and integration of metabolic and regulatory networks
- protein-protein-interactions

(2) Bioinformatic Tools and Platforms

- bio-ontologies
- computational infrastructure for biotechnology
- computational tools for sequencing
- database integration for bioinformatics
- grid computing / software agents for medical or biological applications
- integrative data and text mining approaches
- knowledge-driven / semantic analysis and data integration for high-throughput biological data

- molecular bioinformatics
- molecular databases / data warehouses
- text and data mining for bioinformatics
- visualization (molecules, blood flow)

(3) Artificial Life

- action-perception loops
- adaptive behavior and evolution
- ant systems
- artificial brain research
- autocatalytic systems
- bioelectronics, biomimetics
- bio-inspired robots
- biologically inspired computation, machine intelligence
- bio-morphic engineering
- bio-robotics
- brain informatics
- brain-body linkage
- collective robotics, robotic swarms
- complex adaptive networks and systems
- embodied cognition, brain-body-environment interaction
- evolution and adaptation
- evolvable hardware
- homeostasis and autopoiesis
- immune systems
- in-silico biology
- molecular computer, DNA computing
- molecular self-assembly
- morphogenesis of artificial systems and natural systems
- self-assembly
- self-organization
- self-replication
- sensorimotor coordination
- social behavior, social interaction
- swarm intelligence
- synthesis and origin of life
- synthetic biology