

CFP: Workshop on Computation in Genetic and Biochemical Networks (CoGBiN 2006)

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>> Call for Papers – CoGBiN 2006 <<

Workshop on Computation in Genetic and Biochemical Networks

<http://www.elec.york.ac.uk/intsys/events/cogbin2006/>

Part of UC 2006:

The 5th International Conference on Unconventional Computation
York, United Kingdom, 4th–8th September 2006

WORKSHOP DESCRIPTION

Biological organisms appear orders of magnitude more complex than present-day computational systems, but current understanding of their genetic definition suggests they consist of only a relatively small number of functional components. For example, a human is specified by at most 25000 genes, yet this is sufficient for the development of an organism comprising on the order of 10^{13} cells. Furthermore, the human genome contains only about 5000 more genes than that of *C. elegans*, an organism of considerably lower complexity. This highlights the fact that the source of biological complexity lies not within the individual gene products but rather within their interactions and consequent organisation into genetic and biochemical networks.

Recently there has been much interest in the nature of computation carried out by biological networks: both from the perspective of biologists trying to understand biological function, and from members of the computational community interested in how complex networks can be used to carry out useful computation both in silico and in vivo.

This workshop aims to address a number of questions:

What forms of information processing take place within biological networks?

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How can these be usefully modelled for computational purposes?
How expressive are these models of computation?
How can such models be programmed?
What are their advantages/disadvantages over conventional forms of computation?
How can these models be used to understand biological systems?

TOPICS

We encourage the submission of unpublished theoretical and experimental research results and review papers from members of the biological and computational communities.

Relevant topics include, but are not limited to:

- o Computational models of genetic and biochemical networks
- o Information processing in biological networks
- o Models of genetic regulation
- o Computational complexity
- o Chaos and dynamic systems theory
- o Developmental models in evolutionary and neural computation
- o Evolvability, adaptability, and programmability
- o Cellular automata models
- o Regulatory network control in artificial systems

IMPORTANT DATES

Paper submission deadline: 1st May 2006

Acceptance notification: 1st July 2006

PUBLICATION AND SUBMISSION

Selected papers from the workshop will be considered for publication in the journal BioSystems.

Please see the workshop website for submission guidelines:

<http://www.elec.york.ac.uk/intsys/events/cogbin2006/>

ORGANISING COMMITTEE

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PROGRAMME COMMITTEE

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