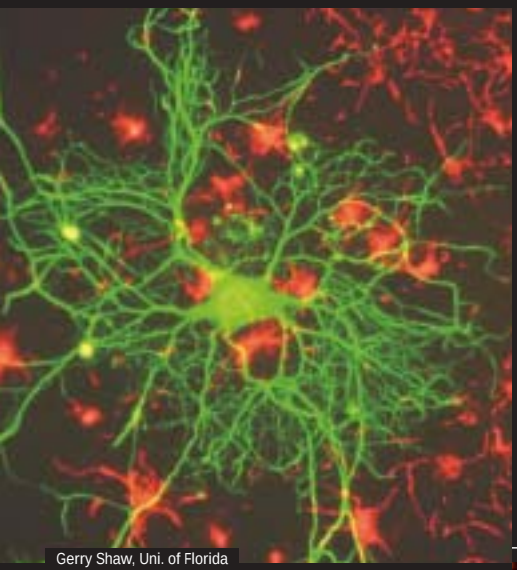
mportant Dates:

Submission deadline:
February 28, 2003

Notification of acceptance:
May 28, 2003

Camera-ready copy:
July 11, 2003

Workshop
September 8 - 11, 2003



Gerry Shaw, Uni. of Florida

Publisher:
BioSystems, Elsevier Science

Submission procedure:
Papers should be no longer than 15 pages (including figures andbibliography).
Complete instructions for the electronic submission and style files can be ound on the IPCAT2003 website.
Papers will either(1) be accepted for presentation at the workshop and for publicationin the special issue of BioSystems, or (2) rejected.

Program Committee:
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ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

IPCAT2003

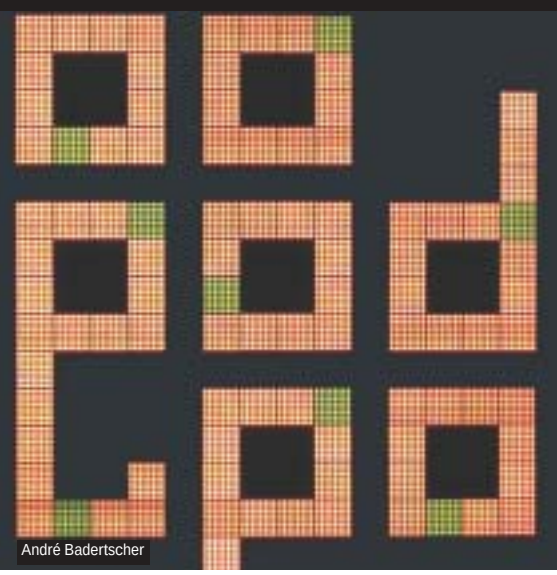
5th International Workshop on Information Processing in Cells and Tissues

LAUSANNE / SWITZERLAND / SEPTEMBER 8-11 / 2003

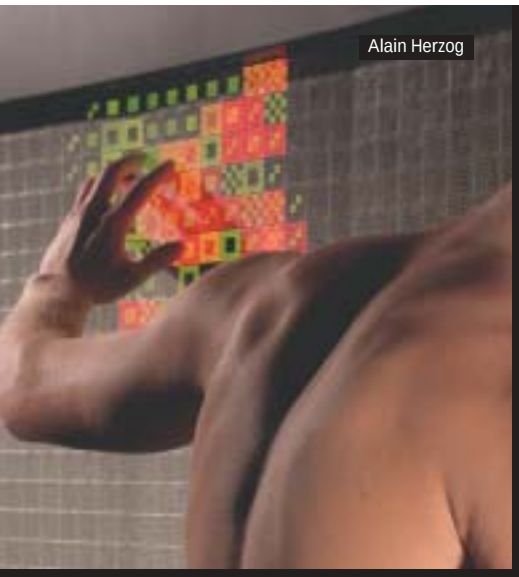
Swiss Federal Institute of Technology, Lausanne, Switzerland

School of Computer and Communication Sciences

Logic Systems Laboratory



André Badertscher


Alain Herzog

scription:

e aim of the series of IPCAT workshops is to ng together a multidisciplinary core of entists who are working in the general area modeling information processing in bio- tems. A general theme is the nature of bio- ical information and the ways in which it is cessed in biological and artificial cells and sues. The key motivation is to provide a mmon ground for dialogue and interaction, hout emphasis on any particular research nstituency, or way of modeling, or single ue in the relationship between biology and ormation.

CAT2003 will highlight recent research and ek to further the dialogue, exchange of ideas, d development of interactive viewpoints ween biologists, physicists, computer entists, technologists and mathematicians t have been progressively expanded through- the IPCAT series of meetings (since 1995). e workshop will feature sessions of selected ginal research papers grouped around ergent themes of common interest, and a mber of discussions and talks focusing on der themes.

CAT2003 will give particular attention to rphogenetic and ontogenetic processes and tems. IPCAT2003 encourages experimental, mputational, and theoretical articles that k biology and the information processing ences and that encompass the fundamental ure of biological information processing, computational modeling of complex bio- logical systems, evolutionary models of computation, the application of biological principles to the design of novel computing systems, and the use of biomolecular materials to synthesize artificial systems that capture essential principles of natural biological information processing.

Topics to be covered will include, but not limited to, the following list:

- Self-organizing, self-repairing, and self-replicating systems
- Evolutionary algorithms
- Machine learning
- Evolving, adapting, and neural hardware
- Automata and cellular automata
- Information processing in neural and non-neural biosystems
- Parallel distributed processing biosystem models
- Information processing in bio-developmental systems
- Novel bio-information processing systems
- Autonomous and evolutionary robotics
- Bionics, neural implants, and bio-robotics
- Molecular evolution and theoretical biology
- Enzyme and gene networks
- Modeling of metabolic pathways and responses
- Simulation of genetic and ecological systems
- Single neuron and sub-neuron information processing
- Microelectronic simulation of bio-information systemics
- Artificial bio-sensor and vision implementations
- Artificial tissue and organ implementations
- Applications of nanotechnology
- Quantum informational biology
- Quantum computation in cells and tissues
- DNA computing


Alain Herzog

Organization:

General Chair:
Daniel Mange, Swiss Federal Institute of Technology Lausanne, Switzerland

Program Chair:
Christof Teuscher, Swiss Federal Institute of Technology Lausanne, Switzerland

Co-Chairs:
Mike Holcombe, University of Sheffield, UK
Ray Paton, University of Liverpool, UK
André Stauffer, Swiss Federal Institute of Technology Lausanne, Switzerland
Gianluca Tempesti, Swiss Federal Institute of Technology Lausanne, Switzerland


André Badertscher

Special Session:

Morphomechanics of the Embryo and Genome + Artificial Life -> Embryonics

Artificial intelligence started with imitation of the adult brain, and artificial life has dealt mostly with the adult organism and its evolution, in that the span from genome to organism has been short or non existent. Embryonics is the attempt to grow artificial life in a way analogous to real embryonic development. This session will include speakers grappling with both ends of the problem. Papers for this special session should be submitted through the regular procedure.

Organizers:
Richard Gordon, University of Manitoba, Canada
Lev V. Beloussov, Moscow State Univ., Russia