CALL FOR PAPERS

Workshop on Bio-Inspired Algorithms for Distributed Systems (BADS)

June 19, 2009

to take place during

6th IEEE International Conference on Autonomic Computing (ICAC 2009)

Barcelona, Spain, June 15-19, 2009

Currently used computer systems are characterized by an ever growing complexity and a pronounced distributed nature. While the use of centralized or hierarchical architectures and algorithms has been dominant so far, they are now becoming impractical because they have poor scalability and fault-tolerance characteristics. Decentralized architectures and algorithms, for example P2P and Grid systems, are increasingly popular, but they need new types of algorithms to be efficiently managed.

Bio-inspired algorithms are proving effective, since they can solve hard parallel and distributed computational problems through the interaction of multiple agents. The behaviour of agents is often inspired by a number of biological systems, including ant colonies, bird flocking, honey bees, bacteria, and many more. The solution of a problem can emerge from the activity of "intelligent" agents that perform complex functionalities or from the interaction of a large number of very simple agents, in the so called "swarm intelligence" systems.

These kinds of techniques feature fault-tolerant and self-adaptive behaviours that help to boost the autonomic nature of distributed systems. Such techniques are sometimes "evolutionary", as they can exploit genetic rules for the selection and the recombination of candidate solutions. Bio-inspired algorithms and systems are routinely applied to hard and large problems in a variety of areas. Some examples are optimization problems solved with genetic algorithms, routing strategies inspired by honey bee behaviour, resource discovery and data mining computations in Grid and P2P frameworks achieved by ant-inspired algorithms, and so on.

The workshop aims to gather scientists, engineers, and practitioners to share and exchange their experiences, discuss challenges, and report state-of-the-art and in-progress research on Bio-Inspired Algorithms and Systems.

Areas of interest

In this workshop we are interested in the exploitation of bio-inspired algorithms and systems to support the effective design and efficient implementation of distributed systems.
The topics of interest include (but are not limited to):
* Bio-inspired algorithms for parallel and distributed computing
* Bio-inspired algorithms for P2P and Grid systems
* Bio-inspired techniques for the construction and management of distributed systems
* Parallel and distributed techniques of Swarm Intelligence: ant colonies, flock of birds, etc..
* Parallel and distributed evolutionary algorithms
* High performance tools for bio-inspired algorithms and systems
* Application of bio-inspired algorithms to routing, resource discovery, scheduling in parallel and distributed systems
* Bio-inspired algorithms for data mining, bioinformatics, etc.

Organizing Committee

- Gianluigi Folino, ICAR-CNR, Italy
- Natalio Krasnogor, University of Nottingham, UK
- Carlo Mastroianni, ICAR-CNR, Italy
- Franco Zambonelli, Università di Modena e Reggio Emilia, Italy

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Naoki Wakamiya, Osaka Univeristy, Japan

Web Site and contact e-mail

http://bads.icar.cnr.it
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Submission Guidelines

The call is open to all members of the Autonomic Computing and Distributed Systems communities. Original papers, no longer than 8 two-column pages (including figures and references), are invited. Papers must be submitted through the Web site http://conf.icar.cnr.it. Please use the ACM format available at http://www.acm.org/sigs/pubs/proceed/template.html and submit your paper in PDF format. All manuscripts will be peer-reviewed and judged on merits including correctness, originality, technical strength, quality of presentation, and relevance to the conference themes. At least one author of each accepted submission must attend the workshop.

Publication

The workshop proceedings will be published by ACM (to be confirmed) along with the proceedings of the other ICAC workshops, and distributed at the conference.

Journal Special Issue

Selected papers will be invited to a special issue of the journal Future Generation Computer Systems, Elsevier (approved).

Important Dates

~~January 31~~ February 08, 2009: Submission of Papers
March 15, 2009:   Notification of Acceptance/ Rejection
April 06, 2009:   Submission of Camera-Ready Copies
June 19, 2009:   Workshop Takes Place