

*Transactions of the Institute of Measurement and Control*

**Special Issue on “Bio-inspired Computation in Robotics”**

**CALL FOR PAPERS**

**Deadline for submission: August 20, 2009**

**Guest Editor: Haibin DUAN, Beihang University, China.**

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**Robotics** have found wide applications in the environment, construction, forestry, agriculture, mining, subsea, intelligent highways, search and rescue, military, and space (orbital and planetary). In recent years, various optimization strategies have been applied to robotics, which mainly include cooperative onboard information processing or decision making capabilities that help them perform various tasks such as obstacle avoidance, data collection, situation assessment, terrain mapping, swarm reconnaissance or cooperative mission planning in a complex and uncertain environment with minimal or no intervention from a remote human operator.

**Bio-inspired Computation** is a field devoted to tackling complex problems using computational methods modeled after design principles encountered in biological systems. From the perspective of science development, Bio-inspired Computation is an emerging interdisciplinary area between natural sciences (especially life sciences) and computer science. Its rapid growth is a natural product of the rapid development of interdisciplinary research today.

A special issue on “**Bio-inspired Computation in Robotics**” will be published in “**Transactions of the Institute of Measurement and Control**”. This Special Issue aims at providing a forum for researchers and practitioners in the fields of natural computation and robotics, with a common interest in the new challenges in these fields. To maintain the inter-disciplinary of Bio-inspired Computation and Robotics, the special issue also encourages the submission of work related to bio-inspired computation modeling both computationally or mathematically. Papers are invited for submission on unpublished work in the following (but not restricted to) areas:

- Genetic algorithms (GA) in robotics
- Ant colony optimization (ACO) in robotics
- Particle swarm optimization (PSO) in robotics
- Immune algorithm (IA) in robotics
- Differential evolution (DE) in robotics
- Quantum computing (QC) in robotics
- DNA computing in robotics
- Cultural algorithms in robotics
- Data farming/mining/fusion in robotics
- Bio-inspired optimization strategies in robotics path planning
- Bio-inspired optimization strategies in robotics task allocation and coordination
- Theoretical comparison of optimization strategies in robotics
- Empirical comparison of optimization strategies in robotics

- Evolvable hardware in robotics
- Robot-team learning and formation
- Swarm robotics
- Simulation and bio-inspired optimization tools for various robots
- Other application of novel bio-inspired optimization strategies in robotics

**Important Dates:**

Submission of Manuscripts: **August 20, 2009**  
Preliminary Notification of Acceptance: **October 15, 2009**  
Revised Version: **November 10, 2009**  
Final Notification of Acceptance: **November 30, 2009**  
Submission of Final Papers: **December 20, 2009**

All submission should include a title page containing the title of the paper, full names and affiliation, complete postal and electronic address, phone and fax numbers, an abstract and a list of keywords, followed by the main text, references, list of figures and tables, figures, and tables. The corresponding author should be clearly identified.

All manuscripts will undergo a normal review process. Only manuscripts with minor modification will be accepted for publication in this special issue. Those manuscripts that need a major revision will be forwarded to the journal office for examining possible publication in regular issues. Original artwork and a signed copyright form will be required for all accepted papers. Inquiries can be made to the guest editor at [hbduan@buaa.edu.cn](mailto:hbduan@buaa.edu.cn). All electronic submissions should be emailed to: <[hbduan@buaa.edu.cn](mailto:hbduan@buaa.edu.cn)>

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