



## Information Sciences

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### Special Issue Call for Papers

#### NATURE-INSPIRED COLLECTIVE INTELLIGENCE IN THEORY AND PRACTICE

##### Guest Editor(s)

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##### Aims and Scope

The past twenty years have witnessed an increasingly large emphasis in the computer science community on the study of bio-inspired computing. A wide spectrum of applications and services has been currently developed and designed which relies on various natural biological paradigms. The most known examples are swarm intelligence, evolutionary algorithms, and the artificial neural networks. Such paradigms find applications in the areas of network security, pervasive computing, mobile and embedded systems, pattern recognition, data classification and many others.

It is of extreme importance to bridge more artificial intelligence methods and communication technologies with biological sciences and capture the analogy between these disciplines. The collaborative work of swarms individuals can solve complex optimization problems in many areas of engineering, not only in transportation/communication networks. The artificial immune system can efficiently detect changes in the environment or deviations from the normal system behavior via self-optimization and learning process. The concepts of intercellular information exchange can be used to learn: efficient dispatching, shortening of signaling pathways and modeling the control loop for a regulatory process in an organism. Some bio-ideas can be successfully exploited to elaborate good strategies against cascading failures in the systems, even terrorism.

The aim of the Special Issue is to highlight an ongoing research on different methodological and technological approaches of nature-inspired theory and collective intelligence together with their applications on various domains.

Relevant topics include but not limited to:

- Nature-inspired methods for Bioinformatics Tools and Computational Biology
- Intelligent Decision Making Systems
- Bio-inspired Computing Models
- Cellular and Organic Grids, Agent Colonies
- Computational Neuroscience
- Natural Team Formation
- Nature-inspired Performance Evaluation
- Self-adaptation, self-maintaining, and self-healing
- Social Collective and Swarm Intelligence

### **Tentative Schedule**

Submission of full papers: 31 Dec 2009  
First decision notification: 31 Jan 2010  
Submission revised papers: 15 Feb 2010  
Final decision notification: 10 June 2010  
Final materials to Elsevier: 30 June 2010  
Estimated publication date: Second half of 2010

### **Submission Instructions**

All papers will be rigorously refereed by 2 peer reviewers of the Journal. Submission of a manuscript to this special issue implies that no similar paper is already accepted or will be submitted to any other conference or journal. Authors should consult the "Guide for Authors", which is available online at [http://www.elsevier.com/wps/find/journaldescription.cws\\_home/505730/authorinstructions](http://www.elsevier.com/wps/find/journaldescription.cws_home/505730/authorinstructions) for information about preparation of their manuscripts. Manuscripts should be submitted via the Elsevier Editorial System <http://ees.elsevier.com/ins/>. Please choose "Special issue: **NICI (Nature-Inspired Collective Intelligence)**" when you reach the Article Type step. First time users need register themselves as Author.