

CALL FOR PAPERS

Special Issue on Cognitive Informatics

Guest Editors: Prof. Yingxu Wang, Prof. Du Zhang, and Prof. Shusaku Tsumoto

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Cognitive Informatics (CI) is a cutting-edge and multidisciplinary research area that tackles the fundamental problems shared by modern informatics, computation, software engineering, AI, cybernetics, cognitive science, neuropsychology, medical science, systems science, philosophy, linguistics, economics, management science, and life sciences. CI is the transdisciplinary study into the internal information processing mechanisms and processes of the **Natural Intelligence (NI)** – human brains and minds – and their engineering applications in computing and the software industry.

The development and the cross fertilization between the aforementioned science and engineering disciplines have led to a whole range of extremely interesting new research topics in CI. The special issue on *Cognitive Informatics* in *Fundamenta Informaticae* (FI) encourages submissions on topics that transcend disciplinary boundaries of computing, cognitive science, and mathematics, which investigate the cognitive mechanisms and processes of human information processing, and their applications in computing and software engineering. This special issue has its focuses on latest development in cognitive informatics, neuralinformatics, autonomic computing, and computational intelligence. Original papers are solicited. Suggested topics include, but are not limited to:

Natural Intelligence (NI)

- Informatics models of the brain
- Cognitive processes of the brain
- Internal infor. processing mechanisms
- Theories of natural intelligence
- Intelligent foundations of computing
- Descriptive mathematics for NI
- Abstraction and means
- Ergonomics
- Informatics laws of software
- Knowledge representation
- Models of knowledge and skills
- Language acquisition
- Cognitive complexity of software
- Distributed intelligence
- Computational intelligence
- Emotions/motivations/attitudes
- Perception and consciousness
- Hybrid (AI/NI) intelligence

Autonomic Computing (AC)

- Imperative vs. autonomous computing
- Reasoning and inferences
- Cognitive informatics foundations of AC
- Memory models
- Informatics foundations of s/w eng.
- Fuzzy logic
- Knowledge engineering
- Pattern recognition
- Agent technologies
- Machine intelligence
- Software agent systems
- Decision theories
- Autonomic problem solving
- Machine learning
- Intelligent Internet
- Web contents cognition
- Autonomic software systems
- Quantum computing

Neuroinformatics (NeI)

- Neuroscience foundations of information processing
- Cognitive models of the brain
- Functional modes of the brain
- Neural models of memory
- Neural networks
- Neural computation
- Cognitive linguistics
- Neuropsychology
- Bioinformatics
- Biosignal processing
- Cognitive signal processing
- Gene analysis
- Gene expression
- Neural signal interpretation
- Visual information representation
- Visual information interpretation
- Sensational cognitive processes
- Human factors in systems

Prospective authors may check the *Guidelines for Authors of FI* at <http://www.iospress.nl/> or <http://alfa.mimuw.edu.pl/>. Submitted papers must not have been previously published or be currently under consideration for publication elsewhere. Conference papers should be significantly extended and revised. All papers will be rigorously refereed. Complete manuscripts in PDF format should be submitted to the Guest Editors before **Feb. 1, 2008**.

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