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Welcome to the Fifth IEEE International Conference on Cognitive Informatics (ICCI 2006)!

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, neuro-psychology, medical science, philosophy, linguistics, life sciences, and many others. CI is the trans-disciplinary study of cognitive and information sciences, which investigates the internal information processing mechanisms and processes of the natural intelligence – human brains and minds – and their engineering applications.

The development and the cross fertilization among the aforementioned science and engineering disciplines have led to a whole range of extremely interesting new research areas. Following the first four successful conferences on Cognitive Informatics, ICCI’02 (Calgary, Canada), ICCI’03 (London, UK), ICCI’04 (Victoria, Canada), and ICCI’05 (Irvine, USA), ICCI’06 focuses on the theme of natural intelligence, autonomic computing, and neural informatics. The objectives of ICCI’06 are to draw attention of researchers, practitioners, and graduate students to the investigation of cognitive mechanisms and processes of human information processing, and to stimulate the international effort on cognitive informatics research and engineering applications. The ICCI’06 program encompasses 40 regular papers, 55 short papers, and 54 poster papers selected from 276 submissions from 18 countries based on rigorous reviews by program committee members and external reviewers. The program is enriched by 3 keynotes and 3 special lectures from prestigious scientists.

The growing field of CI covers many areas as follows in natural intelligence, autonomic computing, and neural informatics:

**Natural Intelligence (NI)**
- Informatics models of the brain
- Cognitive processes of the brain
- Internal information 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. autonomic computing
- Reasoning and inferences
- Cognitive informatics foundations of AC
- Memory models
- Informatics foundations of software engineering
- Fuzzy logic
- Rough set theory
- Knowledge engineering
- Pattern recognition
- Artificial intelligence
- Software agent systems
- Decision theories
- Problem solving
- Machine learning
- Intelligent Internet
- Web contents cognition
- Nature of software
- Quantum computing

**Neural Informatics (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

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