Call for Papers
The International Journal of Computational Intelligence Systems,
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Special Issue on
Computational Intelligence Issues in Systems Experiencing Nonlinear Dynamics and/or Synchronization

Guest Editors:

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A fundamental issue in systems analysis and modeling is about the identification of the system's dynamics including the external interactions that affect the system's behavior. Such identification aims at specifying the set of functions (rules or equations) that captures the factors that control the change of the system's behavior. Often, when dealing with complex nonlinear dynamical systems, the identification is obtained in many cases only by means of approximations. Hence, the relevance of Computational Intelligence (CI) techniques in the context of such systems becomes manifest. The application of such computing models is prompted by the optimization requirements that are raised amongst others by the identification process. In addition, over the last years the appropriateness of CI in optimization tasks pertaining to complex nonlinear dynamical systems has become indubitable as attested by a large number of studies reporting on the successful application of CI models especially in adaptive control applications, fault diagnostic, signal processing, chaos theory, medical diagnostic, etc. However, due to the complexity dimensions of nonlinear dynamical systems, there still exits a large spectrum of unsolved problems that go beyond the traditional intelligent control applications and where CI techniques can play a central role. That is the main purpose behind the present special issue. In fact, the aim of this special issue is to present the latest advances of the application of CI techniques not only in control applications but in various systems where nonlinear dynamics and/or synchronization are key issues of concern. The special issue is intended for a wide audience including mathematicians, physicists, chemists, engineers, computer scientists, biologists, economists and social scientists.

This special issue will cover various topics intertwining CI and both nonlinear dynamics and/or synchronization. A sample of the targeted topics, which is suggestive rather than exhaustive, includes:
- Nonlinear systems and synchronization (theory, design and simulation)
- Chaos in pattern recognition and soft computing
- Theory and applications of cellular automata, neural networks, and cellular neural networks
- CI techniques in nonlinear dynamical systems
- Computational aspects of nonlinear dynamics and synchronization in:
  - Cybernetics
  - Systems control
  - Robotics
  - Signal processing
  - Sequence processing
  - Decision making
  - Image and video processing
  - Traffic management systems
  - Supply chains and logistics systems
  - Intelligent agents technology
  - Self-reconfigurable systems
  - Self-healing systems
  - Self-testing systems
  - Oscillatory systems
  - Networking systems
  - Bio-computing and bio-chemistry
  - Social systems, biology, psychology and economics

Papers submitted must have not been published previously or under consideration for publication, though they may represent significant extensions of prior work. All papers will be reviewed in accordance with the journal policy. Papers must conform to the formatting guidelines as provided by Atlantis Press (see Link: http://www.atlantis-press.com/publications/ijcis/index.html and sent to Abdelhamid.Bouchachia@uni-klu.ac.at in pdf format. For queries about this special issue, feel free to contact the special issue guest editors. Please note the following important dates:

- Submission Deadline: Sept. 30, 2008
- First-Round Reviews: Dec.. 15, 2008
- Final version of revised Papers: Jan. 15, 2009
- Publication: first quarter of 2009