Advances in Fuzzy Systems

Special Issue on
Soft Computing Based Hybrid Systems

CALL FOR PAPERS

Real-world problems in both everyday activity and more advanced fields are characterized by uncertainty, imprecision, partial reliability of relevant information, and high complexity of underlying phenomena. These features often make an application of classical analytical techniques for developing effective solution approaches impossible. The main reasons are that these techniques presume exact formalization of processes under study and do not allow for implementation of human intelligent reasoning under imperfect information. Soft computing (SC) techniques which include fuzzy logic (FL), artificial neural networks (ANN), evolutionary computing (EC), chaos theory (CT), probabilistic reasoning (PR), and other perspective paradigms are driven from human reasoning and general abilities of the animal nature of solving problems characterized with complexity and imperfect information without application of strong mathematical approaches. These features create a basis for development of a new generation of advanced intelligent systems.

Each constituent part of SC has its own remarkable advantages, and this implies they should be used as complementary parts within a single hybrid framework. SC-based solutions provided good results in such fields as modeling and control of nonlinear processes, effective reasoning under imperfect information, and forecasting of behavior of complex systems. However, development of SC-based hybrid systems remains a perspective open direction challenging for new ideas for more effective combination of the constituent parts of SC. Synthesis of SC-based hybrid systems on the basis of a progress of combination of FL, ANN, EC, CT, PR, and other paradigms will, without doubt, lead to development of a new generation of emergent intelligent systems for solving problems in a broad variety of fields, especially in multidisciplinary fields.

We invite authors to submit original research and review papers on development of SC-based hybrid systems and applications. We are interested in papers which help to understand what new optimal effects can be achieved by combining the SC paradigms.

Potential topics include but are not limited to the following:

- Soft computing and modern economics
- Z-number theory and applications
- U-number theory and applications
- Uncertain computation
- Soft computing based approximate reasoning
- Soft computing based forecasting
- Image processing with soft computing
- Soft computing based modeling
- Soft computing in data mining
- Soft computing based smart materials
- Decision analysis with bimodal information
- Neurofuzzy systems
- Intelligent information systems
- Hybrid intelligent control and intelligent robots
- Expert systems
- Hybrid decision support systems
- Soft computing based multiagent systems
- Applications of hybrid systems in industry, economics, business, finance, medicine, materials science, and other areas of interest

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/afs/scbh/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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