Call for papers

Applied Soft Computing

The Official Journal of the World Federation on Soft Computing (WFSC)

Special Issue

“Soft Computing Approaches in the design of energy-efficient wireless systems”

Introduction:

In the last decade, the demand for radio spectrum resources in telecommunications systems has grown dramatically. Both the increasing number of users and the diverse variety of demanded services, have motivated the research community (both academic and industrial) to focus their research efforts on different techniques allowing for a more efficient use of the available resources in each particular scenario: mobile phone communications, densely-deployed sensor networks, etc. In the past, many of the studies in this trend have concentrated on simplicity-based solutions. Following this research area, the recently coined “green technology” concept aims at optimizing the energy consumption of communication devices by attempting to provide enhanced battery autonomy at a minimum cost, not only to the operators themselves, but also to the end users. Unfortunately, most of the proposed advances to date are far from practicality.

To overcome this lack of implementable communication schemes, huge research efforts are currently devoted to balance the trade-off between performance and energy efficiency, from dynamic allocation of available resources as a function of the network conditions/status to the design of efficient network topologies, encoding, modulation, detection techniques or, in general, any other complexity-aware data
processing approaches attaining near-optimal performance. Particularly, soft computing approaches, such as bio-inspired algorithms, fuzzy systems or neural computing, have emerged in the communications realm as powerful tools to efficiently solve theoretically-intractable optimization issues in communications. Such algorithmic methods become even more interesting by virtue of their adaptability to highly-dynamic constraints as those shown by mobile wireless networks.

This special issue tries to be a forum for scientists and engineers from academia and industry to present their state-of-the-art research results on this topic. High-quality contributions are solicited. Contributed papers must be the original work of the authors and should not have been published or under consideration by other journals.

- The Special Issue is focused on Soft computing techniques (Evolutionary computation techniques, Heuristics and Meta-heuristics algorithms, Fuzzy Systems, Neural networks, Support Vector Machines, Hybrid algorithms etc.) in the design of energy-efficient wireless networks.

Possible application topics considered are (but not limited to):

- Multiple user detection.
- Synchronization methods.
- Recent advances in joint sampling and compression algorithms (e.g. Compressed Sensing).
- Channel estimation.
- Energy-efficient network topologies.
- (Dynamic) resource allocation.
- Data fusion techniques.
- Cross-layer synergies among physical and upper (e.g. network) layers.
- Implementation issues.
- Survivability and reliability.
- Protection and restoration.
- Quality of service.
- Network management.
- Congestion control.
- Simulation and queueing models.
- Other applications focussed on energy efficiency in telecommunication networks.
Guest Editors:

**Dr. Sergio Gil-Lopez**
Associate researcher, TECNALIA-TELECOM
Address: P. Tecnológico, Ed. 202, 48170 Zamudio (Bizkaia, Spain).
Phone: +34 94 600 22 66
e-mail: sgil@robotiker.es

**Prof. Dr. Sancho Salcedo-Sanz**
Associate professor, Universidad de Alcalá
Address: Escuela Politécnica Superior, 28871 Alcala de Henares (Madrid, Spain).
Phone: +34 91 885 67 31
e-mail: sancho.salcedo@uah.es

and

**Dr. Javier (Javi) Del Ser**
Associate researcher, TECNALIA-TELECOM
Address: P. Tecnológico, Ed. 202, 48170 Zamudio (Bizkaia, Spain).
Phone: +34 94 600 22 66
e-mail: jdelser@robotiker.es

Paper submission and review process:

- All the papers must be electronically submitted to the journal via the Online Submission System (EES) [http://ees.elsevier.com/asoc](http://ees.elsevier.com/asoc), selecting the appropriate tag in the window “choose type article”.

- All the submitted papers will be strictly peer reviewed by at least two anonymous reviewers.

- Based on the reports by the reviewers, the final decision on papers submitted to this Special Issue will be taken by Editor in Chief of ASOC, Professor Rajkumar Roy.
We encourage the authors to support their works with extra material, such as data files, source codes etc. Please note that the ScienceDirect has the capability to support inline video, which can be streamed within the context of the HTML version of the article.

**Important Dates:**

Deadline for papers submission: 1\textsuperscript{st} October 2010 (though early submission is strongly suggested. Please note that the papers will be managed as soon as they are received in the EES system).

Papers’ review: 1\textsuperscript{st} December 2010.

Final version: January 2011.

**About the journal:**

Applied Soft Computing (ASOC) is the journal of the World Federation on Soft Computing (WFSC), published by Elsevier. Its first issue was published in 2001, and it is nowadays one of the tops journals in the field, with a significant Impact Factor in 2008: 1.909. The journal is devoted to promote Soft-computing techniques, among others:

- Fuzzy Computing
- Neuro Computing
- Evolutionary Computing
- Probabilistic Computing
- Immunological Computing
- Hybrid Methods
- Rough Sets
- Chaos Theory
- Particle Swarm
- Ant Colony
- Wavelet
- Morphic Computing

in real applications of almost all fields in Science and Engineering.