

CALL FOR PAPERS

IEEE SIGNAL PROCESSING MAGAZINE Special Issue on Signal Processing for Cognitive Radio Networks

Cognitive radio is an exciting and new way of thinking and researching about wireless communications. Indeed, it is already being considered as the candidate for the fifth generation of wireless communications. There are several drivers for the development of cognitive radio. Perhaps, by far the most pressing of them all is improved utilization of the electromagnetic radio spectrum: a highly valuable natural resource. Careful studies of the current usage of the radio spectrum by several agencies have already revealed that a large fraction of the radio spectrum is inadequately utilized.

Moreover, cognition can be extended to network rules of operation. A cognitive network integrates cognitive principles in the rules of interaction between nodes, that is, the set of wireless nodes forms a social network that must be modeled and analyzed as one entity in order to optimize the design. Cognitive principles must reflect in the rules that govern the coexistence and interoperability of different wireless systems.

Needless to say, signal processing is destined to play a significant role in the development of cognitive radio networks, hence the need for a special issue of the Signal Processing Magazine on this very topic. The objective of this special issue is to provide the broadest tutorial coverage on the exciting technologies for cognitive radio networks, which include radio-scene analysis, dynamic spectrum management, and cognitive network operation principles and models. We seek the state-of-the-papers dealing with theoretical studies, algorithms, protocol design, as well as architectures and platforms for cognitive radio networks.

Scope of topics: Tutorial papers are solicited. Topics of interest include

- Information theoretic aspects of cognitive radio
- Spectrum sensing mechanism and protocol support
- Multiuser spectrum access techniques
- Solution for fractional bandwidth utilization
- Machine learning techniques for cognitive radio
- Coding and modulation for cognitive radio
- QoS provisioning in cognitive networks
- Cognitive radio prototypes

Submission Procedure:

Prospective authors should submit white papers to the web submission system at <http://www.ee.columbia.edu/spm/> according to the following timetable. White papers should summarize the motivation, the significance of the topic, a brief history, and an outline of the content.

Schedule (all deadlines are firm no exceptions)

White paper due:	November 1, 2007
Invitation notification:	December 1, 2007
Manuscript due:	March 1, 2008
Acceptance Notification:	May 15, 2008
Final Manuscript due:	July 15, 2008
Publication date:	November, 2008

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