

Special Issue on

Cognitive Radio Networks: Survey, Tutorial, and New Introduction

KSII Transactions on Internet and Information Systems

Over the last decades, wireless communications have undoubtedly undergone an explosive growth with myriad applications, which have become an inevitable part of human life. In this view, broadband wireless technologies have enabled efficient voice and data communications and more lately a rather satisfactory mobile internet access. A plenty of mobile devices have come out lately. Additionally, the users' demand has dramatically increased in a short time and results in pushing the systems performance to their limit. However we have a limited resource such as spectrum bands. According to communication theory, the data rate in wireless communications is directly related to the signal-to-noise-ratio of the corresponding information signal and the channel bandwidth. The dramatic users' service demand has led to the development of numerous sophisticated technologies to meet the corresponding data rate requirements. Nevertheless, these achievements were mainly accomplished at the expense of substantially increased bandwidth (Hz) and energy (joules) resources. The increased resource requirements have given us engineering complexity and very high financial cost while a significant scarcity of the available spectrum resources has become a notable burden. This urgent situation has motivated both industrial and academic sectors to focus their efforts on meaningful solutions to the problems. To this end, Cognitive radio (CR) is expected to play an important role in the next generation of wireless communication systems. CR techniques enable us to utilize limited spectrum resources and thus to relieve the current spectrum scarcity.

The goal of this special issue is to gather recent research contributions and advances in cognitive radio networks (CRNs). More specifically, this special issue aims at fostering innovative and significant research on the design, implementation, usage, and evaluation of CRNs. This special issue will also bring together leading researchers and developers in fields of CRNs in the world. In particular, this special issue calls for [only tutorial, survey, and new introduction to state-of-the-art papers](#). We limit mathematical formulas within a maximum of 3. If the authors need more mathematical formulas, you should put them in Appendix of your article. Articles SHOULD be written in [a style comprehensible to readers outside the specialty of the article](#). Thus, articles are suggested to be written by easy and short sentences.

Scope:

Topics of interest include, but are not limited to:

- Spectrum sensing
- Spectrum sharing
- Spectrum management
- Spectrum mobility
- Cognitive radio in 5G
- Cognitive radio for co-existence of M2M and LTE-A in 5G

- Cognitive radio in cloud computing
- Network and physical layer security in cognitive radio networks
- Aggregate interference and coexistence issues.
- MIMO techniques in cognitive radio networks
- Cognitive medium access control, handoff, and routing protocols.
- Resource allocation for cognitive radio networks
- Green cognitive radio networks
- Cross-layer design and optimization of cognitive radio systems
- Self-configuration and interoperability issues
- Practical testbeds in cognitive radio networks
- Industrial report on practical cases

Submission Guidelines:

Authors are invited to submit tutorial, survey, and introductory papers. Papers **SHOULD be new and insightful** for readers. Submissions should follow the author guidelines of KSII Transactions on Internet and Information Systems and the complete instructions for prospective authors can be found at <http://www.itiis.org>. Papers should be submitted to the ScholarOne manuscript submission system, <http://mc.manuscriptcentral.com/tiisjournal>. You **should select** “**Special Issue-Cognitive Radio Networks: Survey, Tutorial, and New Introduction**” as manuscript type. All submissions will undergo initial screening by the Guest Editors for fit to the theme of the special issue and prospects for successfully negotiating the review process.

Important Schedule:

Manuscript Due: June 1, 2014

First Round of Reviews: August 15, 2014

Publication Date: October or November 2014 Issue

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