Call for papers for
Cognitive Radio and Networks Symposium
(CRN)

Symposium Track Co-Chairs

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Submissions must be done through EDAS at: https://edas.info/newPaper.php?c=22631&track=81045
The paper submission deadline is October 14, 2016.

Scope and Motivation

This Symposium serves research interests and topics under the scope of cognitive radio and networks. The use of cognition in radio access and networking is expected to enable a number of significant potential enhancements in mobile and wireless communications. These include better more autonomous localised choices of spectrum usage, better more autonomous networking configuration (e.g., connectivity choices), and better configuration or dynamic adaptation of radio access technologies in response to localised conditions, among others. These in turn lead to benefits such as improvements in spectrum usage efficiency, reduction in mutual interference among spectrum users, better end-user perceived performance, harmonious co-existence among multiple radio access technologies, and more energy-efficient communications, among many others. These benefits have rendered cognitive networking an integral component of next-generation wireless networks. For instance, the use of cognition in emerging wireless systems can enable those systems to better learn how to configure networks and spectrum usage with given configurations at given locations and times, without (or with greatly reduced) human input. Such capabilities will be of fundamental importance in 5G and beyond networking contexts, where the complexity and localised variations in context, as well as the availability of various access means particularly under heterogeneous networking in 5G, will be increased greatly compared with current networks. This complexity is such that it will not be optimal to manage these networks solely with human input, or even with conventional predefined algorithms which are not properly aware of and adaptive to the localized situation. Moreover, cognitive networking will enable future networks to become more adaptable, self-organizing, and able to cope with environmental changes.

This Symposium also covers concepts and technologies that have in a sense been spawned out of, or are related to, cognitive radio and networking. This include TV white spaces, licensed-shared access, the three-tier Citizens' Broadband Radio Service, and dynamic spectrum access in general, among many others.

Main Topics of Interest

The Cognitive Radio and Networking Symposium seeks original contributions in, but not limited to, the following topical areas:

- Design, analysis, and optimization of large-scale cognitive radio networks.
- Forward-looking cognitive radio architectures.
- Full-duplex cognitive radio communications.
- Spectrum sensing, access, and management.
- Detection and estimation techniques for cognitive radio networks.
- Measurements and statistical modeling of spectrum usage.
- Waveform design, coding, modulation, interference mitigation and management for cognitive radio networks.
- Dynamic spectrum access and management.
- Geolocation-database or other database-driven methods for spectrum sharing and opportunistic spectrum usage, such as TV white space, Licensed-Shared Access, and 3.5 GHz Citizens Broadband Radio Service.
- Game-theoretic modeling of cognitive radio systems.
- Energy-efficient cognitive radio communications and networking.

- Applications of cognitive radio networking concepts in emerging cellular, ad hoc, and heterogeneous wireless networks.
- Self-healing, self-organization, and self-configuration features for cognitive radio networks.
- Machine learning, distributed optimization, and reinforcement learning methods for enhanced spectrum sharing, access, and cognitive communications.
- Routing protocols and architectures for cognitive radio networks.
- Learning techniques for harmonious co-existence among heterogeneous cognitive radio systems.
- Economic challenges of cognitive radio networking and spectrum sharing.
- Security and privacy in cognitive radio networks.
- Attack modeling, prevention, mitigation, and defense in cognitive radio systems
- Standardization efforts and regulatory policies for cognitive radio networks.
- Quality-of-service provisioning in cognitive systems.
- Experimental results and test-beds for real-world deployment of cognitive radio networks.

Biographies

Oliver Holland is a recognised expert on topics such as cognitive radio and spectrum sharing in general. He led the ICT-ACROPOLIS Network of Excellence (www.ict-acropolis.eu) for the second-half of its duration, and recently led a major trial of TV white space technology as part of the Ofcom TV White Spaces Pilot. This is among numerous other leadership roles he has served within research. Oliver currently Chairs a number of IEEE standards on topics around spectrum sharing, and has played prominent roles in others, such as serving as Technical Editor of them. He has leadership positions in various high profile conferences and journals, and is often an invited speaker on topics around spectrum access and sharing, among others. Oliver's research interests span all layers of the OSI 7-layer reference model; one particularly strong interest of his is novel radio-spectrum sharing methods such as TV white space. Oliver has co-authored over 150 publications; the >140 of his publications that Google Scholar currently locates have been cited more than 1,000 times. He has co-edited two books, published by Springer and Wiley.

Walid Saad received his Ph.D degree from the University of Oslo in 2010. Currently, he is an Assistant Professor and the Steven O. Lane Junior Faculty Fellow at the Department of Electrical and Computer Engineering at Virginia Tech, where he leads the Network Science, Wireless, and Security (NetSciWiS) laboratory, within the Wireless@VT research group. His research interests include wireless networks, cognitive radio, game theory, cybersecurity, and cyber-physical systems. He has authored/co-authored over 170 publications in these areas. Dr. Saad is the recipient of the NSF CAREER award in 2013, the AFOSR summer faculty fellowship in 2014, and the Young Investigator Award from the Office of Naval Research (ONR) in 2015. He was the author/co-author of five conference best paper awards at WiOpt in 2009, ICIMP in 2010, IEEE WCNC in 2012, IEEE PIMRC in 2015, and IEEE SmartGridComm in 2015. He is the recipient of the 2015 Fred W. Ellersick Prize from the IEEE Communications Society. Dr. Saad serves as an editor for the IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, and IEEE Transactions on Information Forensics and Security.