Call for Papers for  
*Cognitive Radio and AI-Enabled Networks Symposium*

**Symposium Co-Chairs**

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**Scope and Motivation**

Cognitive radio technology is capable of resolving the conflict between overwhelming wireless traffic growth and already crowded radio spectrum. Artificial intelligence (AI) and machine-learning techniques enable wireless networks to dynamically allocate and intelligently manage time-frequency-space resources. For more efficient spectrum utilization and resource allocation, cutting-edge cognitive radio and AI-enabled networking technologies are urged for the next-generation wireless networks with enhanced autonomy and self-reconfiguration. The aim of this symposium is to bring together and disseminate state-of-the-art research contributions that address various aspects of design, analysis, optimization, implementation and standardization, as well as applications of intelligent radio and networking technologies.

**Topics of Interest**

The Cognitive Radio and AI-Enabled Networks Symposium seeks original contributions in the following topical areas, plus others that are not explicitly listed but are closely related:

- Intelligent spectrum sensing, sharing and access
- Machine learning and AI-assisted spectrum access
- AI-enabled cognitive medium access control, interference management and modelling
- AI-enabled distributed cooperative spectrum sensing and multi-user access
- AI-enabled resource allocation in cognitive radio and networks
- AI-enabled spectrum sensing, sharing and access
- Applications and services (e.g., cognitive networking in TV whitespace, LTE unlicensed, and integration with other merging techniques such as massive MIMO and full duplex)
- Architectures and building blocks of AI-enabled radio and networks
- Architecture and implementation of database-based cognitive radio networks
- Attack modelling, prevention, mitigation, and defence in cognitive radio systems
• Challenges and issues in designing AI-enabled radio communications
• Challenges and issues in designing AI-enabled wireless networks
• Cognitive radio and AI-enabled network standards, testbeds, simulation tools, and hardware prototypes
• Deep learning techniques for cognitive radio and networks
• Distributed adaptation and optimization in cognitive radio and networks
• Economic aspects of spectrum sharing
• Energy-efficient cognitive radio communications and networking
• Handoff and routing protocols for AI-enabled radio and networks
• Machine learning-based resource allocation for wireless networks
• Machine learning techniques for cognitive radio and networks
• Modelling and performance evaluation for AI-enabled radio and networks
• Physical-layer security in cognitive radio networks
• Privacy and security of cognitive radio and spectrum sharing
• Quality of service provisioning in AI-enabled radio and networks
• Regulatory policies and their interactions with communications and networking
• Licensed/unlicensed spectrum interoperability for wireless systems
• Reinforcement learning and deep learning for cognitive radio and networks
• Self-configuration, interoperability and co-existence issues
• Spectrum measurements and statistical modelling and learning of spectrum usage
• Spectrum sensing, sharing, learning, and prediction
• Spectrum sensing, learning, sharing, and access for Internet of Things/millimetre-wave systems/Terahertz systems
• Waveform design, modulation, and interference aggregation for cognitive radio and AI enabling networks
• Emerging technology on AI-enabled future wireless networks

Important Dates

Paper Submission: 12 October 2020
Notification: 25 January 2021
Camera Ready and Registration: 22 February 2021

How to Submit a Paper

All papers for technical symposia should be submitted via EDAS. Full instructions on how to submit papers are provided on the IEEE ICC2021 website: https://icc2021.ieee-icc.org/