



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/>