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Sustainable Communications for Renaissance

Call for Papers
Cognitive Radio and AI-Enabled Networks Symposium

Symposium Co-Chairs

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Scope and Motivation

Emerging cognitive radio and artificial intelligence (AI)-enabled networking technologies potentially provide a promising solution to efficient spectrum utilization and resource allocation in wireless access, improving the interoperability and coexistence among different wireless/mobile communications systems and making the future generation radio devices/systems autonomous and self-reconfigurable. The ultimate goal of AI-enabled radio and networks is to make the communication network self-adaptive, self-managed, and truly cognitive. The aim of this symposium is to bring together and disseminate state-of-the-art research contributions that address various aspects of analysis, design, optimization, implementation and standardization, and applications of AI-enabled radio and networking technologies. The scope of this symposium includes (but is not limited to) the topics below.

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:

- Challenges and issues in designing AI-enabled radio communications
- Architectures and building blocks of AI-enabled radio and networks
- Spectrum sensing, spectrum sharing, and spectrum learning and prediction
- Spectrum measurements and statistical modeling and learning of spectrum usage
- AI-enabled cognitive medium access control, interference management, resource allocation
- Energy-efficient cognitive radio communications and networking
- Self-configuration, interoperability and co-existence issues
- Waveform design, modulation, and interference aggregation for cognitive radio and AI-enabled networks
- Machine learning techniques for cognitive radio and networks
- Deep learning techniques for cognitive radio and networks
- Reinforcement learning and transfer learning for cognitive radio and networks
- Distributed and federated learning for cognitive radio and networks
- Architecture and implementation of database-based cognitive radio networks

- Distributed adaptation and optimization in cognitive radio and networks
- Handoff and routing protocols for AI-enabled radio and networks
- Economic aspects of spectrum sharing
- Regulatory policies and their interactions with communications and networking
- Privacy and security of cognitive radio and spectrum sharing
- Attack modeling, prevention, mitigation, and defense in cognitive radio systems
- Physical-layer security in cognitive radio networks
- Security, robustness and resilience of AI and ML techniques in cognitive radio and networks
- Modeling and performance evaluation for AI-enabled radio and networks
- Quality of service provisioning in AI-enabled radio and networks
- Spectrum sensing, learning, sharing, and access for millimeter-wave (mmWave) and Terahertz systems
- Applications and services (e.g., cognitive networking in TV whitespace, adaptation with LTE networks such as LTE unlicensed, and integration with other emerging techniques such as massive MIMO, NOMA, intelligent reflecting surface, and full-duplex)
- Cognitive radio and AI-enabled network standards, testbeds, simulation tools, and hardware prototypes
- Cognitive radio and AI techniques for spectrum coexistence of active and passive systems
- Cognitive radio and AI techniques for Advanced Aerial Mobility (e.g., UAV/UAS networks)
- Cognitive radio and AI techniques for space and satellite communications
- Cognitive radio and AI techniques for 5G and Beyond 5G (B5G) systems
- Blockchain and distributed ledger technology for Cognitive radio and AI enables networks

Important Note

The authors of selected papers from this symposium will be invited to submit an extended version of their work for fast-track review and possible publication in the IEEE Open Journal of the Communications Society.

Important Dates

Paper Submission: 11 October 2022
Notification: 18 January 2023
Camera Ready and Registration: 15 February 2023

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 ICC 2023 website: https://icc2023.ieee-icc.org/