

# IEEE GLOBECOM 2023

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## CALL FOR PAPERS

*Intelligent Communications for Shared Prosperity*

# Cognitive Radio and AI-Enabled Networks Symposium

## Co-Chairs

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## Scope and Motivation

Recent advances on artificial intelligence (AI) techniques have been taken as a promising enabler for improved spectrum efficiency and intelligent resource allocation in cognitive radio networks. Nevertheless, the effectiveness of AI-driven cognitive radio networks highly relies on charted AI algorithms as well as the effective resource allocation strategies. Moreover, the development of computing capabilities in cognitive radio networks has made the implement of massive AI techniques possible. This symposium aims for how to utilize advanced AI techniques to solve tremendous challenges of cognitive radio networks, including modeling, optimization, design, implementation, deployment, and resources management. High quality papers reporting on applications of communications theory from both industry and academia are encouraged.

## 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
- 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
- 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
- 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 Access Networks (e.g., UAV and satellites)
- Cognitive radio and AI techniques for 5G and Beyond 5G (B5G) systems
- Cognitive radio and AI techniques for Space-Air-Ground integrated Network (SAGIN) architecture for intelligent networking
- Integration with other emerging techniques (such as massive MIMO, NOMA, reconfigurable intelligent surfaces, full-duplex, and blockchain)

## Biographies of the Co-Chairs

**Shuai Han** is currently a full Professor at Department of Electronics and Communication Engineering, Harbin Institute of Technology. Shuai Han's research interests include wireless communications security, satellite IoT and the integrated satellite-terrestrial communication networks. Over the academic career, his students and he have contributed in various fields in wireless networks. Shuai Han began his university studies in 2000 in the Communication Engineering from Harbin Institute of Technology. He received his ME and PH.D degree in Information and Communication Engineering from Harbin Institute of Technology in 2007 and 2011, respectively. And he completed his post-doctoral work in 2012 in Electrical and Computer Engineering from Memorial University of Newfoundland in Canada. He has authored or co-authored over 100 technical papers in major journals and conferences. As PI, he has more than twenty grants on wireless networks and positioning. He is an associate editor of IEEE China Communications, IEEE ACCESS, Journal of Communications and Information Networks (JCIN), Journal of Telemetry, Tracking and Command, Journal of Signal Processing. And has served as guest editors for many IEEE magazines and journals. He has served as a co-chair for technical symposia of international conference, IEEE ICC 2023, IEEE GC 2021, IEEE GC 2019, IEEE ICC 2018, IEEE VTC FALL 2016. He has also served as the TPC Chair for some international conferences, including the AICON2019 and MLICOM2018. He is a member of 2020-2021 R10 Awards & Recognition Committee. Also he is senior member of IEEE Communication Society, Chair of IEEE BTS Chapter, Vice Chair of IEEE Harbin ComSoc Chapter, Vice Chair of IEEE Harbin VTS Chapter and Secretary of IEEE AHSN TC.

**Hongliang Zhang** received B.S. and Ph.D. degrees at the School of Electrical Engineering and Computer Science at Peking University, in 2014 and 2019, respectively, where he is currently an assistant professor with School of Electronics. Prior to that, he was a Postdoctoral Associate at Princeton University and University of Houston. His current research interests include reconfigurable intelligent surfaces, aerial access networks, and machine learning methods for wireless networks. He received the best doctoral thesis award from Chinese Institute of Electronics in 2019. He is also the recipient of 2021 IEEE Comsoc Heinrich Hertz Award for Best Communications Letters and 2021 IEEE ComSoc Asia-Pacific Outstanding Paper Award. He has served as a TPC Member and a workshop co-chair for many IEEE conferences. He is the winner of the Outstanding Leadership Award as the publicity chair for IEEE EUC in 2022. He is currently an Editor for IEEE Transactions on Vehicular Technology, IEEE Communications Letters, IET Communications, and Frontiers in Signal Processing. He has also served as a Guest Editor for several journals, such as IEEE Internet of Things Journal and Journal of Communications and Networks. He is an exemplary reviewer for IEEE Transactions on Communications in 2020.

## How to Submit a Paper

All papers for technical symposia should be submitted via EDAS. Full instructions on how to submit papers and important deadlines are posted at <https://globecom2023.ieee-globecom.org/>