



Call for Papers

Symposium on Selected Areas in Communications: Integrated Sensing & Communications Track

Track Chair

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Scope and Motivation

6G wireless systems and beyond will support emerging and diverse applications, such as smart cities, smart mobility, infrastructure monitoring, automation, as well as augmented reality and digital twins. All these applications require not only high-data rate communications, but also reliable and high-resolution sensing. The wide deployment of massive MIMO and Millimeter wave (mmWave) towards TeraHertz (THz) technologies, has enabled signals with high-resolution in both time and angular domain, making it possible to perform high-resolution sensing using communication signals. Under this background, integrated Sensing and Communication (ISAC), in which the sensing and communication operations are tightly coordinated in the network, or even jointly designed via the shared use of a single hardware platform and a joint signal processing framework, has emerged as a key technology towards the next-generation wireless standards.

This track welcomes manuscripts on all aspects of the modeling, design, analysis, optimization, signal processing and implementation of ISAC algorithms, protocols, architectures, and systems. Furthermore, contributions devoted to the channel measurements, system-level simulation, hardware-efficient design, experimental performance demonstrations, prototyping, and field-tests of ISAC are solicited. High quality papers from both industry and academia are encouraged.

Topics of Interest

The Integrated Sensing and Communication track seeks original contributions in the following topical areas, plus others that are not explicitly listed but are closely related:

- Fundamental information theoretical limits for ISAC
- Unified approaches/performance metrics for ISAC
- Network architectures and protocols for ISAC
- Waveform/sequence/coding/modulation/beamforming design for ISAC
- Joint receiver design for ISAC systems
- MIMO, massive MIMO, cell-free MIMO, and intelligent reflecting surface (IRS) technologies for ISAC
- Millimeter wave and THz ISAC
- Hardware-efficient technologies, antenna selection, hybrid analog-digital, few bit representations for ISAC
- Machine learning/AI enabled ISAC
- Sensing-assisted communication and communication-assisted sensing

- Multi-band integrated sensing and communication
- Cooperative sensing and communication in ISAC
- Multi-cellular ISAC techniques
- Network-level planning and design for ISAC
- Environment Side Information aided ISAC
- Wi-Fi sensing for indoor positioning and target detection
- ISAC for vehicular-to-everything (V2X) networks
- Unmanned Aerial Vehicle (UAV) aided ISAC
- Security and privacy issues in ISAC
- Emerging technologies for ISAC and synergies of ISAC with other network functions
- Channel measurement and modeling for ISAC
- System-level simulation, prototyping, and field-tests for ISAC

Important Dates

Paper Submission: 11 October 2023

Notification: 18 January 2024

Camera Ready and Registration: 15 February 2024

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 2024 website: <https://icc2024.ieee-icc.org/>

Journal Publication Opportunity

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.