Call for Papers

AI Enhanced Integrated Sensing and Communications for Green Communications Symposium

The 21st International Conference on Wireless Communications and Mobile Computing

Website: http://iwcmc.org/2025/

Submission Link: **https://edas.info/newPaper.php?c=32919**

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Scope

Integrated Sensing and Communications (ISAC) represents a transformative approach that merges wireless sensing and communication into a single system, significantly enhancing both functionalities with limited resources. This integration not only mitigates the need for separate systems, reducing operational costs and hardware redundancy, but also lessens the environmental footprint of communications infrastructure. Despite its potential, the complexity of integrating such technologies presents significant challenges in ISAC design and optimization. Fortunately, the exponential growth of user data and advances in computational power have driven the development of machine learning (ML) technologies, which excel at capturing complex data distributions and processing information across multiple dimensions, providing comprehensive support for the implementation of ISAC. For instance, at the communication physical layer, deep neural networks can compress channel state information, thereby decreasing CSI transmission and storage costs and contributing to more sustainable communication practices. Convolutional neural networks can enhance power and bandwidth allocation, improving resource efficiency and supporting the balance between communication and sensing tasks, which are crucial for minimizing energy consumption. Moreover, at the application layer, variational autoencoders can generate synthetic training data for ISAC's AI models, reducing the need for energy-intensive real-world data collection. However, integrating these ML technologies into ISAC presents challenges, including ensuring data privacy and security because of the sensitive nature of ISAC data, and maintaining high-quality training data to ensure accurate modeling. Therefore, this symposium aims to provide a platform for researchers from academia and industry to share the latest discoveries and solutions in applying ML technologies to ISAC. The goal is to advance ISAC systems in ways that support more sustainable, energy-efficient, and environmentally friendly communication and sensing practices.

Topics

Accepted papers will be published in the IEEE IWCMC 2025 proceedings and will be submitted to the IEEE digital library (IEEE Xplore). Authors are welcome to submit original papers (not published before and/or simultaneously to another venue) with topics that include but are not limited to:

- ML-assisted Radio Resource Management in ISAC for Green Communications
- ML-assisted Energy-efficient Beamforming in ISAC
- Explainable and Safe ML Applications in ISAC

- ML for Sustainable Physical Technology Designs in ISAC
- ML-empowered Task-oriented Communications in ISAC
- ML for Incentive Mechanisms design in ISAC
- ML-enabled ISAC for Green Communications in Healthcare and Transportation Applications
- Intelligent Energy Management with ML for ISAC
- ML-based Space-Air-Ground Integrated Systems for ISAC
- Distributed Collaborative Learning for Green Communications via ISAC
- Testbed and Platform Development for ML-Enabled ISAC
- Energy-efficient Data Collection for ML Applications in ISAC

Submitted papers are encouraged to address novel technical challenges or industrial and standard aspects of the key technologies related to the conference theme(s).

Important Dates

Deadlines will follow the main conference announced dates.

Note: Within this Symposium, there will be one Best Paper Award.