

IEEE GLOBAL COMMUNICATIONS CONFERENCE

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Cape Town, South Africa

Call For Papers

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SAC Symposium: Machine Learning for Communications

SYMPOSIUM CHAIRS AND CO-CHAIRS

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SCOPE AND MOTIVATION

Machine learning (ML) is envisaged to play a prominent role in beyond-5G and 6G wireless communications. As ML relies directly on actual data rather than their mathematical models, ML has a great potential in optimizing communication techniques under hardware impairments and other nonlinearities that are hardly modeled in traditional communication designs. ML is also promising to support various vertical service requirements and simplify communication architectures by approximating and combining multiple functionalities within and across communication layers. While ML has already been applied in domains such as self-organized networks, sensing or cognitive radio, research in the field of ML for wireless communications is still in its infancy. The viability of ML for wireless applications continues to increase, along with the relentless advances in basic enabling technologies and methods from ML. Meanwhile, the limitations of ML for wireless communications have not yet fully investigated, in terms of legacy compatibility and operator interpretability, as well as ML training overhead and data availability under privacy restrictions. The goals of this symposium are to provide a platform for the latest results in the field of ML for wireless communications, shed light on the challenges and prospect of this new research field, open new perspectives, and inspire innovation. The call for papers is driven towards the needs of beyond-5G and 6G wireless networks and associated new communication concepts in which ML has the potential to be a key enabler. Furthermore, we encourage submissions in ML algorithm developments that are motivated by the specific constraints posed by wireless communications, such as low latency and massive connectivity requirements under distributed and coordinated architectures.

TOPICS OF INTEREST

Original research articles are solicited in, but not limited to, the following topics:

- ML based optimization of modulation and coding schemes
- ML driven transceiver design, source coding, and channel decoding
- ML for channel estimation and prediction
- ML for radio environment awareness and decision making
- ML for massive connectivity and ultra-reliable and low latency communications
- ML for massive MIMO and large intelligent surfaces
- ML for cell-free wireless systems
- ML for vision-aided wireless communications
- ML for positioning and location-based services

- ML for joint communication and control
- ML for semantic communications
- ML for mobile edge computing systems
- ML for physical layer security
- ML for self-organized networks and resource management
- ML for network slicing and system coexistence
- ML for energy efficient communications
- ML for edge intelligence and sensing platforms
- ML based communication systems and their information theoretic capacity and complexity analysis
- Centralized and distributed learning for wireless communications
- Privacy and security preserving distributed training over communications networks
- Neural network compression for low-complexity hardware implementation in wireless networks
- Unsupervised, semi-supervised, and self-supervised learning approaches to communications
- Generative and large language model based approaches to communications
- Multi-agent and model-based reinforcement learning approaches to communications

IMPORTANT DATES

Deadline for paper submission: 1 April 2024

Date for notification: 1 August 2024

Deadline for final paper submission: 1 September 2024

SUBMISSION INSTRUCTIONS

All papers for technical symposia should be submitted via EDAS through the following link:

<https://edas.info/N31446>