



Selected Areas in Communication Symposium

Track on Machine Learning for Communications

TRACK CHAIR:

Slawomir Stanczak, Technische Universität Berlin & Fraunhofer HHI, Berlin, Germany, slawomir.stanczak@tu-berlin.de

SCOPE AND MOTIVATION

Machine learning (ML) has emerged as a promising field of research for wireless communication practitioners, both in academia and industry. ML based applications have shown a significant potential in advancement of wireless communication systems in order to achieve the goals and demands of the future communication networks. Owing to its data-driven approaches, ML has brought a paradigm shift in the way wireless systems are designed and optimized. Traditional mathematical models that facilitated physical (PHY) and medium access control (MAC) layers applications are being replaced or combined (hybrid methods) with ML approaches, attaining better flexibility and robustness in design and deployment of wireless communication systems. While ML has been successfully applied in the fields of computer vision or natural language processing, its application in the field of wireless communications is still in an exploration phase. Recently, many research areas in wireless communications are adopting ML as the basic enabling technology for PHY and MAC layer applications, facilitating further advancements in ML algorithms that are specifically tailored for these applications.

This symposium aims to foster research and innovation in the application of ML for wireless communication in PHY and MAC layers and provides a platform for dissemination of fundamental and applied results. The call for papers is motivated by the requirements posed by future networks of 5G and beyond, and new relevant concepts where ML can potentially be a true enabler. Submissions related to algorithmic developments in ML that tackle the specific constraints posed by wireless communications (e.g. low latency, massive connectivity, distributed architecture) are also encouraged.

TOPICS OF INTEREST

We invite submissions of unpublished works related to application of ML for wireless communications. We do not restrict the type of ML techniques. A non-exhaustive list of relevant topics is given below.

- Construction of Radio Environmental Maps using ML and its applications to wireless communications
- Transceiver Design and Channel Decoding using Deep Learning
- ML based Hybrid Learning Methods for Channel Estimation, Modeling, Prediction and Compression



- End-to-End Communications using ML Techniques such as Auto-Encoders
- Deep Reinforcement Learning for Radio Resource Management
- Reinforcement Learning for Self-Organized Networks
- ML Driven Design and optimization of Modulation and Coding Schemes
- ML Techniques for Non-Linear Signal Processing
- ML based Distributed Training and Learning Over-the-Air
- ML for Internet of Things (IoT) and Massive Connectivity
- ML for Edge Intelligence
- ML for Ultra-Reliable and Low Latency Communications (URLLC)
- Low Complexity and Approximate Learning Techniques
- Algorithmic Advances in ML for Wireless Communications
- Dependable Learning for Ensuring Security and Privacy in Wireless Applications

IMPORTANT DATES

Paper Submission: 15 April 2020

Notification: 25 July 2020

Camera Ready and Registration: 1 September 2020

SUBMISSION INSTRUCTION

All papers for technical symposia should be submitted via EDAS through the following link: <https://edas.info/N27096>