CALL FOR PAPERS

Special Session on **"Emerging Data-driven Approches for Network Optimization"**

Scope

The foundation of 5G and beyond mobile networks lies in the convergence between networking and computing. Network functions at any layer of the protocol stack, from physical to network and transport layer, become software-based and virtualized through software-defined and network function virtualization paradigms. In 5G, the most appealing realization of such convergence is the application of artificial intelligence (AI) and machine learning (ML) to optimize network functions. The latter has generated an increasing interest from academia and industry paving the path for the transformation from the 5G paradigm "connected things" into a "connected intelligence" vision for beyond 5G and 6G mobile networks. To this end, the role of AI/ML is to support zero-touch configuration and orchestration, thereby enabling self-configuration and self-optimization of the mobile network. Mobile networks are indeed becoming increasingly complex, heterogeneous, dynamic and dense, which makes extremely hard to model correctly their behavior. Model-free solutions that AI enable can overcome such challenge.

This Special Session seeks contributions from experts in areas such as network programming, distributed systems, machine learning, data science, data structures and algorithms, and optimization to discuss the latest research ideas and results on application of AI and ML solutions to networking.

Topics of Interest

This Special Session welcomes the submission of original contributions that do not overlap with works that have been published or that are simultaneously considered for publication elsewhere. Specifically, this Special Session seeks contributions in the following major areas (indicative list, other related topics will also be considered):

- Machine learning (ML) and big data analytics in networking

- Case studies showing (dis)advantages of AI/ML techniques for networking over traditional ones

- Edge-driven data analytics and applications to smart cities

- AI/ML assisted network optimization

- Resource-efficient machine learning for mobile networks

- Measurements and analysis of network traffic for AI/ML systems

- Efficient ML data structures, algorithms and network protocols to process network monitoring data

- Approaches for privacy-aware network traffic data collection

- Architectures for federated learning and its applications to networking

- Energy-efficient federated learning

- Incentive mechanisms of federated learning

- In-network computation for next generation wireless networks

Important Dates

Paper submission deadline	May 20, 2020
Paper acceptance notification	July 05, 2020
Camera-ready paper	July 31, 2020
Conference date	September 14-16, 2020

Paper Submissions Guidelines

Prospective authors are invited to submit a full paper of not more than six (6) IEEE style pages including results, figures and references. Papers should be submitted via EDAS. Papers submitted to the conference, must describe unpublished work that has not been submitted for publication elsewhere. All submitted papers will be reviewed by at least three TPC members, while submission implies that at least one of the authors will register and present the paper at the conference. Electronic submission will be carried out through the EDAS web site at the following link: https://edas.info/newPaper.php?c=27371&track=101982

All accepted papers will be included in the conference proceedings and IEEE digital library (http://ieeexplore.ieee.org/).

Special Session Organizers

- Claudio Fiandrino, *IMDEA Networks Institute, Spain*
- Andrea Capponi, *University of Luxembourg, Luxembourg*