

Call-for-Papers: IEEE Communications Magazine Data Science and Artificial Intelligence for Communications

The objective of the *Data Science and Artificial Intelligence for Communications Series* of the IEEE Communications Magazine is to provide a forum across industry and academia to advance the development of network and system solutions using data science and artificial intelligence.

Advances of the Internet, mobile and fixed communications, and computing have opened new frontiers for tomorrow's data-centric society. New applications are increasingly depending on machine-to-machine communications, in turn creating untraditional workloads and demanding more efficient and reliable infrastructures. Such immensely diverse traffic workloads and applications will require dynamic and highly adaptive network environments that are capable of self-optimization for the task at hand while guaranteeing high reliability and ultra-low latency.

Networking devices, sensors, agents, meters, smart vehicles/systems generate tremendous amounts of data while requiring new levels of security, performance, and reliability. Such complexities demand new tools and methodologies for effective services, management, and operation. Predictive network analytics will have an important role in insight generation, process automation required for adapting and scaling to new demands, resolving issues before they impact operational performance (e.g. prevent network failures, anticipate capacity requirements), and overall decision making throughout the network. Data mining and analytic tools for inferring quality of experience (QoE) signals are needed to improve user experience and service quality.

Innovations in artificial intelligence, machine learning, reinforcement learning and network data analytics introduce new opportunities in various areas, such as channel modeling and estimation, cognitive communications, interference alignment, mobility management, resource allocation, network control and management, network tomography, multi-agent systems, prioritization of network ultra-broadband deployments. These new analytic platforms will help revolutionize our networks and user experience. Through gathering, processing, learning and controlling the vast amounts of information in an intelligent manner future networks will enable unprecedented automation and optimization.

This Series solicits articles addressing numerous topics within its scope including, but not limited to, the following:

- All aspects of artificial intelligence, machine learning, reinforcement learning and data analytics aiming at enabling and enhancing next generation networks. The scope of issues that can be addressed includes both conventional measures such

as traffic management, QoE, service quality, as well as future network behavior through intelligent services and applications.

- Methods, systems and infrastructure for the analysis of network, service traffic and user behavior for efficient and reliable design of networks, including deep learning and statistical methods for network tomography.
- Predictive analytics and artificial intelligence for network optimization, network security, network assurance, and data privacy and integrity. Diagnosis of network failures using analytics and AI.
- Automated communication infrastructure among smart machines and agents (including humans, e.g. speech and vision), and information fusion for automation and enablement of multi-agent systems.
- Communication and networking to facilitate smart data-centric applications

SUBMISSION GUIDELINES

Manuscripts must be submitted through the magazine's submissions Website at <http://mc.manuscriptcentral.com/commag-ieee>. You will need to register and then proceed to the author center. On the manuscript details page, please select **Data Science and Artificial Intelligence for Communications** Series from the drop-down menu. Manuscripts should be tutorial in nature and should not be under review for any other conference or journal. They should be written in a style comprehensible and accessible to readers outside the specialty of the article. Mathematical equations should not be used. For detailed submission guidelines please refer to the magazine website for the list of guidelines that must be followed by all submissions to the IEEE Communications Magazine: <https://www.comsoc.org/commag/paper-submission-guidelines>

Authors are encouraged to contact the Series Editor before submitting an article in order to ensure that the article will be appropriate for the Series. Papers can be submitted anytime during the year. They will receive a review process, and, if accepted, they will be published in the first slot available for this Series.

SERIES EDITORS

Irena Atov

Microsoft

USA

irena.atov@hotmail.com

Kwang-Cheng Chen

University of South Florida

USA

kwangcheng@usf.edu

Shui Yu

University of Technology Sydney

Australia

shui.yu@uts.edu.au