

The *ITU Journal on Future and Evolving Technologies (ITU J-FET)* is an international journal providing complete coverage of all communications and networking paradigms, free of charge for both readers and authors. The ITU Journal considers yet-to-be-published papers addressing fundamental and applied research. It shares new techniques and concepts, analyses and tutorials, and learnings from experiments and physical and simulated test beds. It also discusses the implications of the latest research results for policy and regulation, legal frameworks, and the economy and society. This publication builds bridges between disciplines, connects theory with application, and stimulates international dialogue. Its interdisciplinary approach reflects ITU's comprehensive field of interest and explores the convergence of ICT with other disciplines. The ITU Journal welcomes submissions at any time, on any topic within its scope.



2nd special issue on

AI and machine learning solutions in 5G and future networks

Call for papers

Artificial Intelligence (AI) will be the dominant technology of the future and will impact every corner of society. In particular, AI/ML (machine learning) will shape how communication networks, a lifeline of our society, will be run. Many companies in the information and communication technology (ICT) business are exploring how to make best use of AI/ML. ITU has been at the forefront of this endeavour exploring how to best apply AI/ML in future networks including 5G networks and has been building an AI/ML Toolkit comprising of standards ("Recommendations" in ITU parlance) on ML architecture ([ITU Y.3172](#)), data handling ([ITU Y.3174](#)), intelligence level ([ITU Y.3173](#)), ML marketplace ([ITU Y.3176](#)), ML model serving ([ITU Y.3179](#)), and others. Further specifications are in the process of being turned into standards such as ML function orchestrator and ML sandbox.

Building on its standards work, ITU conducted its first ITU AI/ML in 5G Challenge in 2020, a global competition in which 26 partners (telecom operators, vendors, and academia) hosted 23 problem statements. 1300+ participants from over 60 countries have engaged in this contest, solving real-world problems. ITU launched a call for papers at the end of the first Challenge. The best peer-reviewed papers are now being published in a special issue of the [ITU Journal on Future and Evolving Technologies](#).

In 2021, ITU launched its second ITU AI/ML in 5G Challenge. Sixteen problem statements are being offered. ITU is already now launching a new call for papers based on the research related to the second edition of the Challenge. Based on solutions and results from the ITU Challenge, we are calling for papers from hosts and participants of the ITU Challenge to submit their solutions for publication in a special issue of the ITU Journal. This special issue is dedicated to exploration of Artificial Intelligence and Machine Learning in 5G and future networks as well as enabling technologies and tools in networks.

Suggested topics

Application of AI/ML in future networks including 5G

- Methodologies for AI-enabled communication systems
- AI and ML for network management
- Network performance using AI/M
- Simulators and data management techniques

Machine learning and AI for wireless communications system design beyond 5G

- Radio resource management
- AI and ML for wireless/mobile traffic analysis and prediction
- AI and ML for network management and orchestration

Deep learning for communication networks

- Graph Neural Networks (GNN) applied to communication networks
- Application of Deep Neural Networks (DNN) in communication networks

Advances in AI for signal processing

- Signal processing for communications and networks
- Hybrid model-based/ML-based approaches

Keywords

5G, Beyond 5G, 6G, artificial intelligence (AI), wireless communication systems, machine learning (ML), deep learning, architecture, function orchestrator, sandbox, intelligence level, data handling, marketplace

Deadlines extended

Paper submission: **28 February 2022**

Paper acceptance notification: 11 April 2022

Camera-ready paper submission: 30 May 2022

Paper submission

This special issue calls for original scientific papers. Submitted papers should not be under consideration for publication elsewhere. Submissions must be made electronically using EDAS: Editor's Assistant at <https://edas.info/N29082>. Templates and guidelines can be found at <https://www.itu.int/en/journal/j-fet/Pages/submission-guidelines.aspx>

Publication

As soon as they get accepted, papers will be continuously published on the ITU digital library. They will then be bundled into the special issue digital publication.

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