



PUBLICATIONS

Home / Publications / Magazines / IEEE Communications Standards Magazine / Call for Papers / Self-Organizing Networks: Opportunities, Challenges, and Applications

Self-Organizing Networks: Opportunities, Challenges, and Applications

Publication Date

September 2025

Manuscript Submission Deadline

31 January 2025

Special Issue

Call for Papers

[SUBMIT A PAPER](#)

 The network management automation problem in 6G systems has been gaining attention from both the standardization organizations and researchers. The current age of agile and dynamic cloud-based environment demands autonomous systems

for managing network resources. The goal of operators is to optimize the network resources in order to achieve minimalism with efficiency. The Self-Organizing Networks is the next leap of evolution that is capable of going beyond automation capabilities. With Self-Organizing Networks, it is not just making the network capable of managing resources, but rather making the network learn and adapt itself with respect to the dynamic environment. In networks, the autonomous tasks refer to self-healing, self-diagnosing, and self-provisioning. With the help of emerging technologies, such as Quantum Computing, Artificial intelligence (AI), Generative AI, Internet of Things (IoT), and Blockchain, autonomous tasks can be realized in current network systems. In this Special Issue (SI), we aim to bring together academic researchers, industrial practitioners, and individuals working in this emerging exciting research area to share their innovative ideas and latest findings, and identify and discuss potential use cases, open research problems, technical challenges, and solution methods in the context of standardization. This SI is targeted at the above issues related to Self-Organizing Networks: QoS Provision and Resource Management. Authors are invited to submit previously unpublished papers to this Special Issue. Topics include, but are not limited to:

- ML/DL for Self-organizing Networks.
- SDN/Network Slicing for Self-Organizing Networks.
- Blockchain for Self-Organizing Networks.
- Edge Computing for Self-Organizing Networks.
- Big Data Analytics for Self-Organizing Networks.
- Federated Learning for Self-Organizing Networks.
- IoT for Self-Organizing Networks.
- Dynamic Resource Allocation Techniques.
- Quantum Computing for Self-Organizing Networks.
- Decentralized AI for Self-Organizing Networks.
- Autonomous Network architectures and protocol designs.
- Quality of Service (QoS) issues such as Dynamic Resource Allocation.
- Spectrum Allocation and Energy Efficiency.
- Enabling Trust for Self-Organizing Networks.

- Futuristic paradigms for advanced use cases; adopting blockchain, quantum communication, etc.
- Parameters like interoperability, heterogeneity, and bandwidth in congested networks.
- Optimization Techniques (e.g. Haris Hawk) for Self-Organizing Networks.

Submission Guidelines

Manuscripts should conform to the standard format as indicated in the Information for Authors section of the [Paper Submission Guidelines](#). All manuscripts to be considered for publication must be submitted by the deadline through [Manuscript Central](#). Select “October2024/Self-Organizing Networks: Opportunities, Challenges, and Applications” from the drop-down menu of Topic/Series titles.

Important Dates

Manuscript Submission Deadline: 31 January 2025 (Deadline Extended)

Authors' Revision Notification Date: 1 February 2025

Revised Manuscript Submission Deadline: 15 March 2025

Final Decision Notification Date: 15 April 2025

Camera-ready Files Due: 30 April 2025

Guest Editorial/Column: 15 May 2025

Expected Publication Date: September 2025

Guest Editors

[Kapal Dev](#)

Munster Technical University, Ireland

[Yang Xiao](#)

University of Alabama, USA

[Sunder Ali Khowaja](#)

TU Dublin, Ireland

Atul Kumar Pandey

IIT BHU, India

Maurizio Magarini

Politecnico di Milano, Italy

CONNECT WITH US:



[Home](#) [Sitemap](#) [Contact & Support](#) [Accessibility](#) [Nondiscrimination Policy](#)

[IEEE Ethics Reporting](#) [Terms](#) [IEEE Privacy Policy](#)

© 2025 IEEE COMMUNICATIONS SOCIETY. ALL RIGHTS RESERVED.

Use of this website signifies your agreement to the IEEE Terms and Conditions.

A public charity, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.