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| **Abstract:** | The ITU Journal on Future and Evolving Technologies will have published by November 2021 eight issues – three regular, five special issues – within slightly more than a year. Furthermore, four calls for papers for special issues have been announced, with at least three more calls for papers to be announced by the end of the year. This document provides details. |

# 1 Introduction

The [ITU Journal on Future and Evolving Technologies](https://www.itu.int/en/journal/j-fet/Pages/default.aspx) (ITU J-FET), was launched in September 2020 and marks a new chapter in the publication of academic research. Under the leadership of the Editor-in-Chief, [Prof. Ian F. Akyildiz](https://www.itu.int/en/journal/j-fet/Pages/editorial-board.aspx) (Ken Byers Chair Professor Emeritus in Telecommunications at Georgia Tech, USA and Chief Executive Officer at Truva Inc.; h-index: 131; Citations: 130’000+), this 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, the economy and society. Its interdisciplinary approach reflects ITU’s comprehensive field of interest and explores the convergence of ICT with other disciplines.

ITU J-FET is committed to the timely publication of very high quality, peer-reviewed, original papers. **Free, fast, for all**, the Journal aims to promote accessibility of research to academics and industry researchers across the world. The publication is free of charge for both readers and authors, highlighting the true sense of the term "open access". The international [Editorial Board](https://www.itu.int/en/journal/j-fet/Pages/editorial-board.aspx) of experts who are in the forefront of the telecommunications research world, is committed to providing detailed, constructive feedback on submitted papers, as well as a fast turn-around time of less than 3 months from submission to publication.

ITU Member States adopted a new Resolution at the ITU Plenipotentiary Conference, which convened in Dubai, United Arab Emirates, from 29 October to 16 November 2018, to support the further development of the ITU Journal. Members resolved to establish collaborative efforts with the research community and to raise awareness of the ITU Journal worldwide (Resolution 207 (Dubai, 2018)).

By November, the ITU J-FET will have completed Volume 2 (2021) with the publication of two regular issues and a series of five special issues. A new set of special issues has been developed, with the calls for papers announced and publication anticipated for 2022.

# 2 Publication of the ITU J-FET regular issues

A picture containing logo

Description automatically generatedThe ITU J-FET published its first issue ([Volume 1(2020), Issue 1](https://www.itu.int/pub/S-JNL-VOL1.ISSUE1)) in December 2020 which included ten original research papers that provide an in-depth analysis of evolving technologies.

In April 2021, the second regular issue of the ITU J-FET was published ([Volume 2(2021), Issue 1](https://www.itu.int/pub/S-JNL-VOL2.ISSUE1)), with eight published papers highlighting the areas of cryptocurrency, wireless sensor networks and spectrum allocation.

Both regular issues, each containing forewords from the ITU Secretary-General and the Director of the Telecommunication Standardization Bureau, as well as an Editorial from the Editor-in-Chief, are available to download from the ITU Journal website, free of charge.

The next regular issue containing accepted papers is currently in progress with additional papers to this issue already published and available on our website.

Achieving a significant impact factor is a goal for this Journal and will derive from the relevance of journal papers to the priorities of academia, industry and governments, leading the way to new frontiers in research.

# 3 Recent publications of the ITU J-FET special issues

The ITU Journal publishes original research online all year round, welcoming papers at any time, on all topics within its scope (please visit the [About ITU J-FET](https://www.itu.int/en/journal/j-fet/Pages/about.aspx) webpage for detailed information) and with the aim of building bridges between disciplines, connecting theory with application, and stimulating international dialogue on the future and evolution of the digital transformation. In addition to the continuous publication of papers on subjects within the ITU Journal’s scope, in 2021, the ITU J-FET also welcomed papers related to its five special issues.

1. Diagram

   Description automatically generated**Internet of Everything**

The first published special issue of the ITU is on the [Internet of Everything](https://www.itu.int/pub/S-JNL-VOL2.ISSUE5) and explores the natural evolution of the Internet of Everything and dives below the surface to explore the fundamental questions of Internet of Everything.

Published in October 2021, the issue contains eight academic research papers, that contribute to the technological and theoretical advancement in the IoE domain and covering the main IoE research issues.

The Editorial Board of this issues includes [Giacomo Morabito,](https://www.dieei.unict.it/docenti/giacomo.morabito) University of Catania, Italy, as Leading Guest Editor; and the following Guest Editors: [Luigi Atzori](https://www.unica.it/unica/en/ateneo_s07_ss01_sss01.page?contentId=SHD30924), University of Cagliari, Italy; [Huansheng Ning](http://www.cybermatics.org/lab/HuanshengNing.html), University of Science and Technology Beijing, China; and [Joel J. P. C. Rodrigues](http://lattes.cnpq.br/5050313480683695), Federal University of Piauí (UFPI), Brazil.

1. **AI and machine learning solutions in 5G and future networks**

A picture containing chart

Description automatically generated[AI and machine learning solutions in 5G and future networks](https://www.itu.int/pub/S-JNL-VOL2.ISSUE4) builds on the standards work of ITU including on ML architecture ([ITU Y.3172](https://www.itu.int/rec/T-REC-Y.3172/en)), data handling ([ITU Y.3174](https://www.itu.int/rec/T-REC-Y.3174/en)), intelligence level ([ITU Y.3173](https://www.itu.int/rec/T-REC-Y.3173/en)) and ML marketplace ([ITU Y.3176](https://www.itu.int/rec/T-REC-Y.3176/en)) as well as on the [ITU AI/ML in 5G Challenge](https://www.itu.int/en/ITU-T/AI/challenge/2020/Pages/default.aspx), 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. Based on results from this Challenge in 2020, hosts and participants were encouraged to submit their solutions for publication in this special issue of the ITU Journal.

This issue contains an Editorial of the Challenge Organizers (Reinhard Scholl and Thomas Basikolo, ITU, and Vishnu Ram, Independent Researcher), and ten papers dedicated to the exploration of artificial intelligence and machine learning in 5G and future networks as well as enabling technologies and tools in networks.

This issue was completed with the support of the Challenge Organizers and leading experts as members of the Editorial Board.

Leading Guest Editor: [Chih-Lin I](https://attend.ieee.org/wieils-beijing-2019/chih-lin-i/), China Mobile Research Institute, China

Guest Editors: [Akihiro Nakao](https://www.nakao-lab.org/?page_id=55), University of Tokyo, Japan; [Aldebaro Klautau,](https://www.lasse.ufpa.br/aldebaro/) The Federal University of Pará (UFPA), Brazil; [Nuria González Prelcic](https://ece.ncsu.edu/people/ngonzal9/), North Carolina State University, USA; and [Albert Cabellos-Aparicio](https://personals.ac.upc.edu/acabello/), Technical University of Catalonia, Spain.

1. Chart

   Description automatically generated**Wireless communication systems in beyond 5G**

Papers included in this issue explore future and evolving technologies and discuss the potential of technology evolution, addressing what key future services and applications might be needed to design novel wireless communication systems beyond 5G.

[Wireless communication systems in beyond 5G](https://www.itu.int/pub/S-JNL-VOL2.ISSUE6) considers the relationship of 5G to machine learning and artificial intelligence and provides a forward-looking perspective in this area of research.

The Editorial Board includes [Dejan Vukobratovic](https://sites.google.com/view/vukobratovic), University of Novi Sad, Serbia, as Leading Guest Editor; and the Guest Editors [Guan Gui,](http://www.scholat.com/guiguan) Nanjing University of Post and Telecommunications, China; [Güneş Karabulut Kurt](https://securewireless.io/), Istanbul Technical University, Turkey; [Haris Gačanin](http://www.ice.rwth-aachen.de/), RWTH Aachen University, Germany; [Matti Latva-aho](https://www.oulu.fi/university/researcher/matti-latva-aho), University of Oulu, Finland; and [Petar Popovski](http://petarpopovski.es.aau.dk/), Aalborg University, Denmark.

1. **Terahertz communications**

Diagram

Description automatically generatedIt is anticipated that THz band communications will enable unprecedented applications both at the macro-scale and at the nano-scale, ranging from high-speed satellite communications, ultra-high-capacity wireless fronthaul/backhaul in cellular networks, ultra-high-speed short-distance data transfer between devices, to inter/intra-chip communications and instantaneous data exchange between nano-scale devices.

This special issue will present the most recent advances with respect to the theoretical foundations and practical applications of [Terahertz communications.](https://www.itu.int/pub/S-JNL-VOL2.ISSUE7) The original research in this issue spans the topics arising from heterogenous networks and extends to aspects of wireless communications in space.

This issue will be published by the end of October with the support and contribution of the Leading Guest Editor, [Wolfgang Gerstacker](https://www.idc.tf.fau.de/person/wolfgang-gerstacker/#biography), Friedrich-Alexander University Erlangen, Germany; and the Guest Editors, [Chong Han](https://sites.ji.sjtu.edu.cn/chonghan/), Shanghai Jiao Tong University, China, and [Josep Miquel Jornet](https://unlab.tech/team_members/josep-miquel-jornet/), Northeastern University, USA.

1. **Internet of Bio-Nano Things for health applications**

Diagram

Description automatically generatedThe special issue on the [Internet of Bio-Nano Things for health applications](https://www.itu.int/pub/S-JNL-VOL2.ISSUE3) comprises eight insightful papers on the most recent advances with respect to the theoretical foundations and practical implementation of IoBNT towards health applications.

This comes as Internet of Things (IoT) approaches technological maturity with growing number of applications on the market and new integrative ideas emerging to push the current boundaries of IoT and extend its application range.

The Editorial board includes [Bige Deniz Unluturk](https://sites.gatech.edu/bunluturk/), Michigan State University, USA, as Leading Guest Editor, and the Guest Editors [Murat Kuscu, Koc](https://mysite.ku.edu.tr/mkuscu/) University, Turkey; [Erin Purcell](https://reilmsu.com/), Michigan State University, USA; [Wen Li](https://www.egr.msu.edu/mems/), Michigan State University, USA; [Ulkuhan Guler,](https://icaslab.org/) Worcester Polytechnic Institute, USA; and [Nureddin Ashammakhi](https://samueli.ucla.edu/people/nureddin-ashammakhi/), University of California Los Angeles, USA.

# 4 New series of special issues announced

The ITU Journal has announced a new series of special issues to be published in 2022 and paper submissions are currently welcome. These issues continue to look towards exploring the areas of future technologies and with an emphasis on 6G as well as papers based on the most recent ITU AI/ML in 5G Challenge.

More information on the [Editorial Board](https://www.itu.int/en/journal/j-fet/Pages/editorial-board.aspx), [scope and topics​](https://www.itu.int/en/journal/j-fet/Pages/about.aspx)​, [publication rights and copyright​](https://www.itu.int/en/journal/j-fet/Pages/publication-rights-copyright.aspx), [submission guidelines and templates​​](https://www.itu.int/en/journal/j-fet/Pages/submission-guidelines.aspx), and [review policy](https://www.itu.int/en/journal/j-fet/Pages/review-policy.aspx) can be found online.

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| **I.** |  | [Innovative network solutions for future services](https://www.itu.int/en/journal/j-fet/2022/003/Documents/ITUJ-FET_network-solutions_cfp.pdf) will highlight the characteristics needed for future networks to achieve the versatility and flexibility needed to support a wide array of envisaged services.  Submissions are welcome by **15 November 2021** |
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| **II.** |  | [Towards vehicular networks in 6G era](https://www.itu.int/en/journal/j-fet/2022/001/Documents/ITUJ-FET_vehicular-networks_cfp.pdf) calls for papers dealing with rising communication and networking technologies for vehicular networks that will be required to meet the high expectations of the 6G era.  Deadline for submissions is **30 November 2021** |
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| **III.** |  | This special issue will explore the evolution of beyond 5G towards 6G with the increasing integration of wireless segment and access/metro/core portions of the network as well as the growing entanglement of communications and computation.  Submissions to this issue on [Integrated and autonomous network management and control for 6G time-critical applications](https://www.itu.int/en/journal/j-fet/2022/002/Documents/ITUJ-FET_network-mgmt-control_cfp.pdf) are welcome by **13 December 2021** |
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| **IV.** | [Chart, diagram  Description automatically generated](https://www.itu.int/en/journal/j-fet/2022/004/Pages/default.aspx) | Based on the second ITU AI/ML in 5G Challenge, the special issue on [AI and machine learning solutions 5G and future networks](https://www.itu.int/en/journal/j-fet/2022/004/Documents/ITUJ-FET_AI-ML-5G_cfp.pdf) will present the solutions and results from the ITU Challenge.  Participants of the ITU Challenge are welcome to submit their research papers by **31 January 2021**. |

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For more information on the ITU J-FET activities, please visit the ITU Journal [webpage](https://www.itu.int/en/journal/j-fet/Pages/default.aspx) or contact the ITU Journal Team at [journal@itu.int](mailto:journal@itu.int).

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