ITU Journal

Future and evolving technologies

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Volume 3, Issue 3, December 2022

ISSN: 2616-8375

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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, as well as learning from experiments and physical and simulated testbeds. It also discusses the implications of the latest research results for policy and regulation, legal frameworks, 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, and on any topic within its scope.

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ITU Journal on Future and Evolving Technologies, Volume 3, Issue 3, December 2022

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Foreword

Houlin Zhao

Secretary-General
International Telecommunication Union

ITU and academia share a commitment to the public interest. This commitment is embodied by the ITU Journal on Future and Evolving Technologies.

Our journal is achieving exactly what it set out to when it launched in September 2020.

It has taken up a unique position in the research landscape with its publication of papers from authors of worldwide reputation, at no charge to authors or readers.

We seek global representation in our published papers and teams of reviewers and editors, and we welcome an interdisciplinary approach to the broad scope of topics addressed by ITU.

It has been gratifying to see the enthusiasm with which our journal has been welcomed by academia.

We have had the pleasure of publishing 129 papers from 471 contributors and 70 per cent of these contributors are academics. Academics also account for over 90 per cent of the editors, guest editors and reviewers making up our editorial boards.

I extend my gratitude to every single one of you and I would especially like to thank our Editor-in-Chief, Ian F. Akyildiz, for the great dedication and conviction that define his leadership.

ITU is the United Nations specialized agency for information and communication technologies (ICTs). Our global membership includes 193 Member States and over 900 companies, universities, and international and regional organizations.

In contributing to the journal and the work of ITU, leading minds in science and engineering are enhancing global knowledge of the latest developments in ICT and prospects for future innovation.

At a time of accelerating digital transformation, with ICTs now essential to a sustainable future, we must continue strengthening the bonds between government, industry and academia to ensure that we capitalize on our synergies.

The ITU Journal exemplifies exactly this spirit.

Houlin Zhao
Secretary-General
International Telecommunication Union

Foreword

Chaesub Lee
Director
ITU Telecommunication Standardization Bureau

This latest issue of the ITU Journal features research on the digital continuum and next-generation networks, networking beyond 2030, and autonomous network management and control for 6G time-critical applications.

Past issues in 2022 have covered topics ranging from holographic communications, digital twins, and edge computing to the growing research challenges in wireless communications associated with extended reality.

They have also addressed artificial intelligence and machine learning solutions for 5G and future networks, emerging trends and applications expected to shape future networks, and vehicular network innovations to support smart and safe mobility.

The ITU Journal succeeds in addressing this breadth of topics thanks to its vibrant supporting community and the depth of insight on offer to readers.

We gain even more insight from the ITU Journal's webinar series featuring talks from world-renowned researchers.

Alongside our journal, ITU Academia membership and ITU Kaleidoscope conferences form two more key avenues for academics to engage in ITU's work.

ITU Academia members contribute to ITU expert groups responsible for radiocommunication, standardization and development, strengthening the work of ITU and boosting the impact of research.

Annual Kaleidoscope conferences highlight research into topics of growing strategic relevance to ITU standardization. The 2022 edition of the conference will explore the innovation required to make the metaverse a reality.

I will be forever grateful to the researchers that have supported our journal in achieving the growing stature that it enjoys today. Together we have pioneered a new direction in ITU's collaboration with academia that is certain to create meaningful, lasting value.

I would especially like to thank our Editor-in-Chief, Ian F. Akyildiz, for the vision and passion that characterize his leadership and the outstanding support that he has offered ITU on every step of this journey.

We have created a journal that demonstrates the inclusive character of ITU and upholds our longstanding reputation as a source of information the world can trust.

Chaesub Lee
Director
ITU Telecommunication Standardization Bureau

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