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ITU Journal - Special issue on AI/ML solutions in 5G and future networks

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AI/ML in 5G

Grand Challenge Finale

Applying machine learning in communication networks

15-17 December 2020
12:00 - 16:00 Geneva

Alessia Magliarditi, ITU

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- **For All:** covers all of communications and networking
- **Free:** no charge for both readers & authors
- **Fast:** submission to publication: 2-3 months

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- h-index: 126
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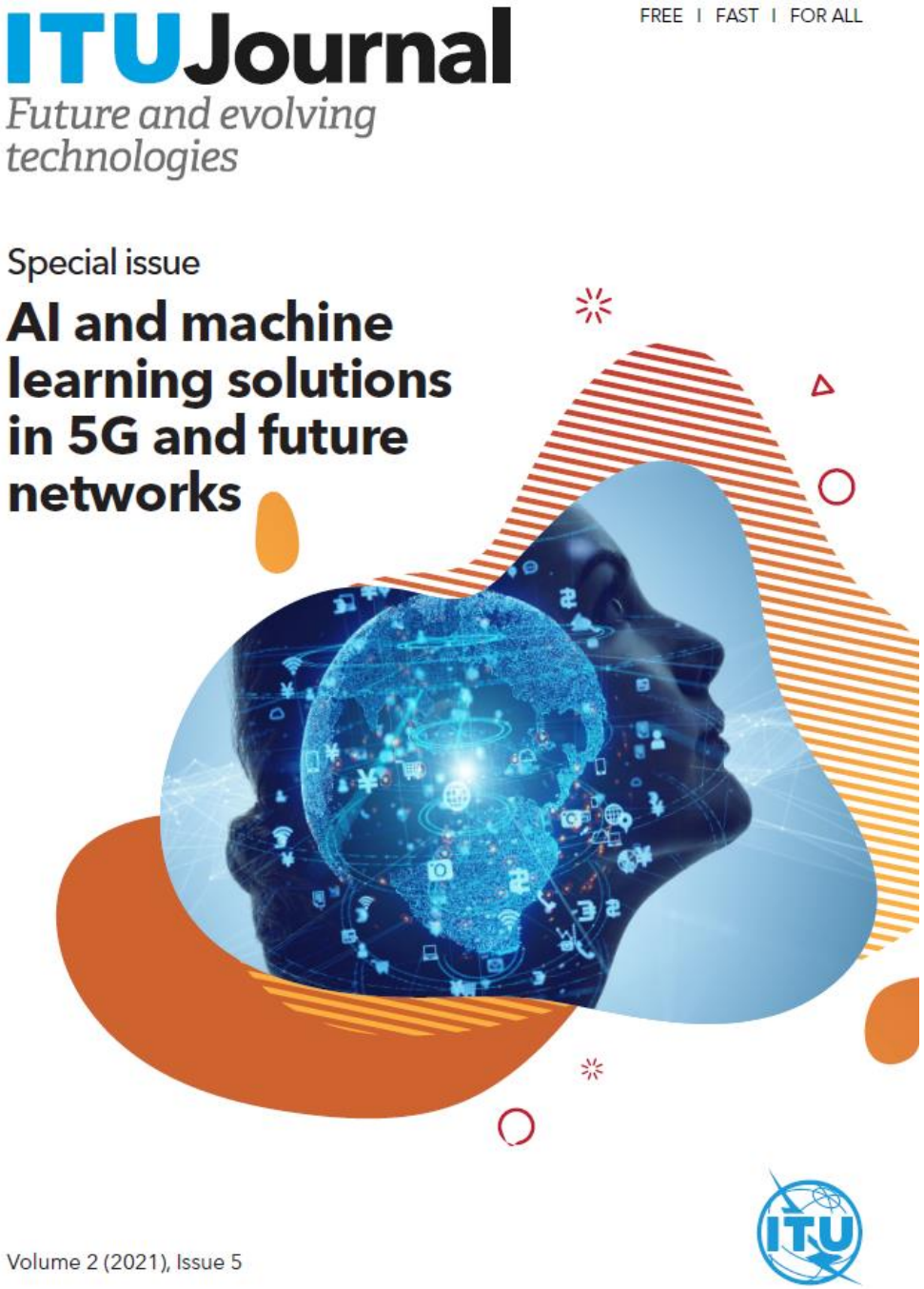

DEADLINES

- Paper submission: 22 February 2021
- Paper acceptance notification: 12 April 2021
- Camera-ready paper submission: 3 May 2021

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Inaugural issue
will be published on Monday 21 Dec!

List of topics at:
https://www.itu.int/en/journal/j-fet/Pages/about.aspx

Submit your paper here: https://edas.info/N27714

Special issues

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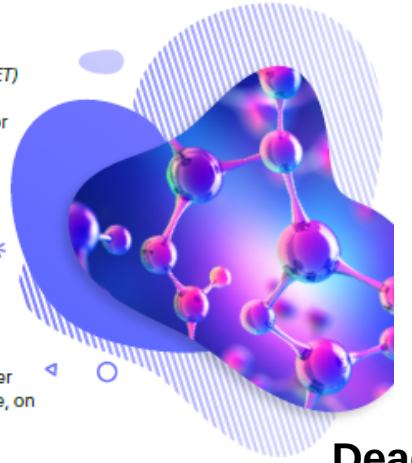

Special issue on

Internet of Bio-Nano Things for health applications

Call for papers

As Internet of Things (IoT) approaches technological maturity with growing number of applications on the market, new integrative ideas emerge to push the current boundaries of IoT and extend its application range. One such approach follows a holistic view and regards the universe as an interconnected entity which is to be observed, understood, and manipulated with new information and communication technologies (ICT). At the center of this approach lies an emerging ICT framework, the Internet of Bio-NanoThings (IoBNT), envisioning the heterogeneous collaborative networks of natural and artificial nano-biological functional devices (e.g., engineered bacteria, human cells, nanobiosensors), seamlessly integrated to the Internet infrastructure. IoBNT is positioned to extend our connectivity and control over non-conventional domains (e.g., human body) with unprecedented spatiotemporal resolution, enabling paradigm-shifting applications, particularly in the healthcare domain, such as intrabody continuous health monitoring and theranostic systems with single molecular precision.

The broad application prospects of IoBNT have attracted significant research interest at the intersection of ICT, bio-nanotechnology, and medical sciences, with the great majority of studies directed towards (i) the design and implementation of Bio-NanoThings (BNTs), (ii) the understanding of natural IoBNT (e.g., nervous nanonetwork), (iii) the development of communication and networking methods for IoBNT (e.g., molecular communications), (iv) the design of bio/cyber and nano/macro interfaces, and (v) the development of new IoBNT applications.

Deadline for submission: 22 January 2021

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Special issue on

Internet of Everything

Call for papers

The *Internet of Everything* (IoE) is the interconnection of people, processes, data, and things. It was conceptualized by CISCO as the natural evolution of the Internet of Things (IoT), in the aim of including the entire realm of information sources and destinations in one paradigm.

Although the IoE concept has attracted the increasing attention of the scientific community since its introduction, the research results achieved so far have only just scratched the surface leaving the very fundamental questions regarding the IoE unanswered. In fact, the IoE has characteristics in terms of scale, heterogeneity of involved entities, sensitivity of the information managed and user expectations that pose novel questions requiring a radical rethinking of several core communication and networking concepts.

In the spirit of the ITU J-FET journal, the objective of this special issue is to contribute to the technological and theoretical advancement in the IoE domain by stimulating novel research contributions covering the main IoE research issues.

Deadline for submission: 1 February 2021

Submit your paper: https://edas.info/N27910

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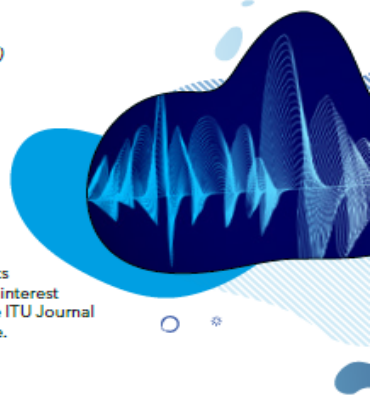

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Special issue on

Terahertz communications

Call for papers

The Terahertz (THz) band from 0.1 THz to 10 THz will be of paramount importance for wireless communications in the next decade. In particular, due to its abundant frequency resources, the THz band will be a key to overcome the spectrum scarcity and capacity limitations inherent to current wireless systems. It 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.

However, many challenges unique to THz communications have to be still addressed. For example, molecular absorption and spreading losses are much more pronounced for the THz range compared to millimeter-wave (mmWave) frequencies, and device technology will impose more strict requirements on communication and networking paradigms than for the microwave frequencies related to, for example, a limited output power of amplifiers, analog-to-digital conversion (ADC) and digital-to-analog conversion (DAC) with fewer bits and higher phase noise levels of oscillators.

This special issue will present the most recent advances with respect to the theoretical foundations and practical applications of THz communications. Prospective authors are cordially invited to submit their original manuscripts on the following suggested (non-exclusive) list of topics:

Deadline for submission: 8 February 2021

Submit your paper: https://edas.info/N27930

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Special issue on

Wireless communication systems in beyond 5G era

Call for papers

During the development and deployment of 5G mobile cellular systems, a number of new technological concepts, advances and paradigm shifts have emerged, altering the perspective of the research community on how one should design wireless communication systems in the future.

The proliferation of machine learning and artificial intelligence tools and technologies, while having limited effect on 5G, are already demonstrating their imminent future impact on the design of communication systems across the layers of the traditional communication protocol architecture. Most notably, these technologies further accelerate the trends of cognition and self-organization, ranging from the device spectrum access level, across algorithms governing physical and medium access layer operation, all the way to the level of network organization and resource allocation.

In addition, advent of new materials, combined with their controllability and programmability, transforms the propagation environment from a passive entity into an active communication system ingredient, especially in the domain of high-frequency (e.g., THz-domain) wireless communications based on directed and pencil-beam signal propagation.

In another development, the ever-increasing densification of cellular infrastructure is gradually escaping the Earth surface and we are witnessing introduction of the third, aerial dimension where dense deployments will firstly emerge at a very low-height level using Unmanned Aerial Vehicles (UAVs), such as drones, and Low-Earth Orbit (LEO)-level using micro-satellite constellations, creating novel challenges in 3D network design and optimization.

Next, going to the domain of miniaturization and wireless sensor platforms, progress from on-body to in-body sensors is offering not only further prospects of creating novel human-machine interfaces

Deadline for submission: 15 February 2021

Submit your paper: https://edas.info/N27972

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Free, fast, for all, the **ITU Journal** aims to promote accessibility of ICT research to academics and industry researchers across the world.

Thank you!

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