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This global health crisis is a unique challenge that has impacted many members of the IEEE family. These are difficult times, but we will get through them by working together. Thank you for your support of our shared mission to advance technology for humanity.

IEEE Future Networks Releases the International Network Generations Roadmap (INGR)

The IEEE Future Networks Initiative announced the release of the first edition of the IEEE International Network Generations Roadmap (INGR). The INGR is a valuable reference tool that helps identify and reduce technical and engineering risks associated with all aspects of developing and deploying next generation networks through the year 2030. Forecasting at three-, five-, and 10-year horizons with planned annual updates, the INGR emphasizes the need for collaboration among all stakeholders in industry, academia, and standards development organizations in undertaking this high-risk engineering challenge.

5G technology is positioned to bring a sea change in networking that will have an impact for years to come, capitalizing on work being done around IEEE in areas like massive connectivity, the tactile internet, Internet of Things, connected vehicles, mobile edge computing, quality of service, network slicing, and more. In order to build the appropriate foundation for these applications, the release of the INGR First Edition concentrates on key technology trends that will impact the core 5G and 6G design drivers and challenges.



International Network Generations Roadmap

The INGR will help guide operators, regulators, manufacturers, researchers, government, and other interested parties involved in developing the 5G and, later on, the 6G ecosystems. [Learn more.](#)

Technology Policy and Ethics

IEEE Future Directions Technology, Policy and Ethics publishes articles addressing issues in current and future technologies, including the social and ethical considerations. We are

currently seeking submissions of original content, articles of 800-1200 words on the implications of technology, including but not limited to policy and ethics topics. If interested, please email FDPolicyEthics@ieee.org. Learn more about submitting an article through the [author guidelines](#).

Current Trends and Future Directions in Security of FPGA

Applications with Focus on Thin Clients

Cameron Collins, *University of Wisconsin - Green Bay* and Ankur Chattopadhyay, *Northern Kentucky University*

Recent high-profile security flaws in conventional desktop and server processors have brought increased interest and attention to the risks posed by proprietary hardware and the closely guarded, obfuscated firmware that tends to accompany it. Adoption of open-source hardware and firmware could potentially address this issue. However, bringing any hardware based intellectual property (IP) to production through traditional methods may affect people plus organizations and may involve legal implications within the product's supply chain. Additionally, a large attack surface poses a problem. Field-programmable gate arrays (FPGAs) can prospectively address this concern, as they can be programmed and functionally verified directly by organizations which use them.

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Cyber-physical Forest Protection Systems, Part 2

Emad Roshandel, *Eram Sanat Mooj Gostar Company, Iran* and Mohammad Khosravi, *Shiraz University of Technology, Iran*

As was discussed in the [first part](#) of this article, Wireless Sensor Networks (WSNs) can play a crucial role in the protection of forests. Different factors of a high-performance WSN like communication networks, power supplies, and installation methods of sensors were discussed in the first part of the article. In this second part, power supplies of sensor nodes and their energization are significantly considered as our topic for more discussion.

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The Faustian Bargain - The Promise of AI and the Destruction of Jobs, Part 2

Frank Groom, *Ball State University, Muncie, Indiana*

[Read Part 1](#)

In the blossoming days of globalization some of the lower level “white-collar” work was outsourced to India and other southeastern Asian countries, but the difficulty of the 12 hour time zone difference, language differences, and cultural requirements of the work caused some of that work to return as pointed out recently by Ben Casselman in *The New York Times*.

While all this business evolution has been occurring, the world of information technology has exploded with ideas, experience, tools, and techniques. Venture capitalists have seen the potential and have funded the nation's technologists to “think big” - the self-driving car, the electric car, space shuttles for everyone, even drones for delivery, automated trucking for intercity and national transport. And the mimicking of the brain's facial recognition process has empowered the utilization of artificial intelligence (AI) facial recognition screening.

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Current Activities in our Technical Communities



IEEE DataPort™ is now available for use! Go to iee-dataport.org to be connected to this valuable one-stop shop data repository which serves the growing Big Data technical community. [Sign up](#) for the IEEE DataPort™ Newsletter to get weekly updates, including the latest and most popular data-sets, delivered to your inbox.

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Read the latest issue of *IEEE Blockchain Technical Briefs*, our quarterly online publication. Our January issue features a look at integrating existing business management systems with blockchain systems, a blockchain-based solution for managing renewable-based microgrids, an analysis on the profitability of double-spending Bitcoin, and two new Bitcoin mining tactics termed Towing and Shutdown. If you are working in the blockchain space, we are always looking for new contributors. See our [editorial guidelines](#) for more information.

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Join us for our next webinar: *A Large-scale Standardized Physiological Pipeline Reveals Functional Organization of the Mouse Visual Cortex*, on 31 March at 1:00 pm ET. This webinar will be presented by Dr. Saskia de Vries, Assistant Investigator, Allen Institute for Brain Science. [Register now for free.](#)

Bioelectronics is a rapidly growing field that develops electronic systems to intelligently interact with biological tissue for applications spanning healthcare, lifestyle, and education. Access on-demand learning modules from the [2019 IEEE Brain Virtual Conference on Bioelectronics](#) to learn fundamental principles of bioelectronic systems and hear from world experts about how to build a successful career in this emerging research field.

These modules are free to subscribers of the IEEE Brain Community. [Access them on ILN.](#)

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The *IEEE Transactions on Cloud Computing* is a scholarly journal dedicated to the multidisciplinary field of cloud computing. It publishes peer-reviewed articles that present

innovative research ideas and application results of cloud computing, focusing on key technical issues related to theory, algorithms, systems, applications, and performance.

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[IEEE Security & Privacy Magazine](#) aims to provide a unique combination of research articles, case studies, tutorials, and regular departments covering diverse aspects of security and dependability of computer-based systems, including legal and ethical issues, privacy concerns, tools to help secure information, methods for development and assessment of trustworthy systems, analysis of vulnerabilities and attacks, trends and new developments, security issues in wireless networks, design and test strategies for secure and survivable systems, and cryptology, and other topics of interest to a general, technically oriented readership.

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The [2020 Augmented World Expo \(AWE-USA\)](#) is now being offered online on 26-29 May! This event is the leading AR/VR event series in the world.



[Listen](#) to the recently published podcast, where the Investor's Podcast chats with Dr. Tom Coughlin, 2019 President of IEEE-USA. Dr. Coughlin has many publications and six patents to his credit. He is also the author of *Digital Storage in Consumer Electronics: The Essential Guide*, which is now on its second edition with Springer. Coughlin Associates provides market and technology analysis as well as data storage technical and business consulting services.

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Call for authors on 5G and 6G topics! The Future Networks Initiative is seeking submissions for the following:

The IEEE 3rd 5G World Forum (10-12 September 2020 in Bangalore, India) has an [active call for papers](#). The technical paper submission deadline is 1 May; the special session and workshop papers deadline is 1 May.

IEEE Future Networks Tech Focus seeks authors for brief, practical articles (not journal papers) about 6G technology to keep the IEEE community up to date on next-generation networking issues and developments around the world. [Visit the Tech Focus page](#) for more information.

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The *IEEE Internet of Things Magazine* (IEEE IoTM) publishes high-quality articles on IoT technology and end-to-end IoT solutions. IoTM articles are written by and for practitioners and researchers interested in practice and applications, and selected to represent the depth and breadth of the state of the art. Visit the [IoTM website](#) to learn more, subscribe, and view upcoming calls for papers.

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The [IEEE Life Sciences Technical Community \(LSTC\)](#) provides a broad-based home for IEEE members and societies to further their interests in all aspects of life sciences. The community, which is sponsored and supported by six societies, engages with its audience through its newsletter, conferences, and workshops. Under newly elected [leadership](#), the society has expanded interests to include emerging fields of extreme environments and veterinary medicine.

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IEEE Quantum Week aims to be a leading venue for presenting high-quality original research, ground-breaking innovations, and compelling insights in quantum computing, engineering, and technologies. The deadline for technical paper abstract submissions is 5 April. The deadline for poster abstract submissions is 29 June. See the [IEEE Quantum Week website](#) for details.

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Dr. Dejan Milojicic of Hewlett Packard Labs recently led a Virtual Roundtable Discussion on the present and future of accelerator chips for artificial intelligence (AI) and high-performance computing (HPC), which appeared in the February 2020 issue of *Computer*. Other participants in the discussion included Paolo Faraboschi, Satoshi Matsuoki, and Avi Mendelson. [Read the transcript at IEEE Xplore.](#)

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Join us for our upcoming webinar, *IEEE Smart Cities Standards P2784: North American Railways*, on Tuesday 31



March at 11:00 am EDT. This webinar will discuss the development and opportunities for North American Railways which will help the viewers understand the possibilities for a digital transformation in one of the most environmentally friendly modes of transportation and how technology is changing the way we see the railways. This webinar will touch on current trends and market outlook for the future of railways on the continent. [Register](#).

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Join us beginning on 14 April for a four part Live Tutorial Event, *Distributed Energy Resources Demand and Enable a Smart Electric Grid*.



IEEE Smart Grid eNewsletter - Call for Articles. If you are interested in writing an article for the June issue on Protection Practices of Smart Grid, [complete the form](#).

International Forum on Smart Grid for Smart Cities, is scheduled for 9-11 September 2020 in Aachen Germany. [Information coming soon!](#)

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IEEE SDN now offers a collection of online courses in the field of Software Defined Networking, Network Function Virtualization, and related technologies. Learn from industry experts about topics that include the fundamentals of SDN and NFV, security and management challenges, the latest SDN open source platforms, and more. Participants also have the opportunity to earn Continuing Education Units (CEUs) and Professional Development Hours (PDHs) with each course. [Access the courses](#).

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The IEEE Sustainable ICT initiative's mission is to build a holistic approach to sustainability through ICT by incorporating green metrics through IEEE technical domains and foster the incorporation of green metrics and standards in design concepts for various technical domains. The initiative brings together expertise from different fields, in conferences and publications, with a view to foster holistic design and standardization approaches. Please join our [Technical Community](#) to help drive this very important topic.

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Are you interested in the field of transportation electrification? TEC coordinates broad and deep activities throughout the IEEE in the growing electrification revolution across transportation domains, including advances in electric and hybrid cars, more-electric ships and aircraft, rail systems, personal transport, and the motive, storage, power grid, electronic intelligence, and control technologies that make them possible. [Join TEC](#).

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IEEE Future Directions Events

Due to the ongoing global health crisis, many conferences are shifting to a virtual format. This month, we would like to highlight several online and virtual activities that can help support your technical and professional growth.

IEEE Smart Cities Webinar: [IEEE Smart Cities Standards P2784: North American Railways](#), 31 March 2020 at 11:00 am ET

IEEE Brain Webinar: [A Large-scale Standardized Physiological Pipeline Reveals Functional Organization of the Mouse Visual Cortex](#), 31 March 2020 at 1:00 pm ET

IEEE Smart Grid Live Tutorial: [Distributed Energy Resources Demand and Enable a Smart Electric Grid](#), 14 April 2020 at 2:30 pm ET

[2020 Augmented World Expo \(AWE-USA\)](#), 26-29 May 2020, Now Online

[2020 IEEE 44th Annual Computers, Software, and Applications Conference \(COMPSAC\)](#), Accepting Paper Submissions for Online Proceedings

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