IEEE Future Directions Newsletter

In this Issue:

- Taking the Lead on Fostering Cross Collaboration
- 2022 IEEE Future Networks World Forum (formerly 5G World Forum)
- Activities in Our Current Technical Communities
- IEEE Future Directions Events
- Activities in Our Graduated Technical Communities
- Open Call for Proposals

Fostering Cross Collaboration

Taking the Lead on Fostering Cross Collaboration

The IEEE Future Directions Committee (FDC) through the leadership of Christine Miyachi, Chair, has challenged the Committee to be more inclusive and more collaborative. One key example is the collaboration seen with industry-related committees and Societies in IEEE.

Dejan Milojicic, Chair of the Industry Advisory Board (IAB) of IEEE FDC has seen a "subtle but extremely profound and important relationship to industry-related committees and Societies in IEEE. More specifically, we built relationships to IEEE Industry Engagement Committee (IEC), to IEEE Corporate Liaison Program (CLP) of IEEE Santa Clara Valley (SCV) Section, as well as to IEEE Computer Society as a starting Society to build relationships with.

We have drawn our revitalization of FDC IAB from the experience in the IEC IAB, including recruiting some of the key members. The same is true for CLP. We also leveraged Technology Predictions, a decade-long program of IEEE Computer Society, to model Megatrends, the key product IEEE FDC IAB will generate this year. In addition, the primary contributors to Megatrends include technologists from IEEE IEC IAB, IEEE SCV CLP, and IEEE CS. Both IEC and CS staff helped substantially in raising awareness, marketing, and recruitment for FDC IAB activities."

As observed by the FDC Vice Chair and member of the IEEE Industry Engagement Committee (IEEE IEC), Celia Desmond, "One of the hottest topics today in technology is Sustainability, which also includes the impact of Climate Change. Sustainability spans across all our Societies, and it is front and center today for industry. The IEEE Future Directions Committee is working together with IEEE Industry Engagement Committee (IEEE IEC) to bring forward information about technical solutions and also current industry activities. In 2021 and 2022 FD has held Round Tables featuring both academics and industry participants discussing responses to improve sustainability and handle climate change. IEEE IEC helped organize a workshop on Sustainability. A document will be produced from this workshop, and interviews were videotaped with multiple industry leaders showing what their companies are doing to ensure sustainability."

Stay tuned in future issues of the IEEE Future Directions Newsletter for updates.

2022 IEEE Future Networks World Forum (formerly 5G World Forum)

The **2022 IEEE Future Networks World Forum** (formerly **5G World Forum**) aims to bring experts from industry, academia, and research to exchange their vision as well as their achieved advances towards future networks of 5G and beyond and encourage innovative cross-domain studies, research, early deployment and large-scale pilot showcases that address the challenges of future networks.

The conference is a hybrid event based in Montreal Canada from 12-14 October 2022. Register today and take advantage of a rich program, including:

- Daily plenary keynotes, including Google's Vint Cerf
- Symposia on 6G Mobile Networks, IoT & Sensor Networks, and more
- Workshops on AI-Enabled Future Networks, 5G Trials Across Verticals, and more
- Special topical and vertical sessions with the Open Grid Alliance
- 16 tutorials
- 120+ technical paper presentations
- Industry panels and forums

Learn More & Register

Activities in Our Current Technical Communities

Are you passionate or perplexed by Blockchain and its many applications and variations? Are you ready to ride the wave of Blockchain innovation and entrepreneurship, or afraid of missing the boat?

- In either case, join the crowd and register for one of the virtual, in-person or hybrid Global Emerging Technologies "GET" Blockchain Events. - When you join you'll connect with thought leaders in the upcoming series of GET Events created to explore a range of Global Emerging Technologies related to Blockchain & Beyond! Submit today to the 2022 IEEE 1st Global Emerging Technology Blockchain Forum, hosted from 7-11 November 2022.

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IEEE Digital Privacy will be at various events this fall, including the ITS World Congress 2022, IEEE BHI-BSN 2022, and IEEE SMC 2022. Join us at these upcoming events, and visit our website to learn more about how IEEE is bringing the voice of technologists to the digital privacy conversation.

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The IEEE Digital Reality Initiative was launched in early 2019, in support of Digital Transformation, as an overall IEEE Collaborative effort. Digital Transformation is fueled by advances in technology, such as sensors and actuators, artificial intelligence (AI), and machine learning (ML). By leveraging these technologies and others being developed, such as augmented reality (AR), virtual reality (VR), and Digital Twins, the line between the physical world and the digital world will be increasingly less distinct. Visit the initiative website to learn more.

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IEEE Future Networks is hosting multiple events this fall. Join the virtual 2nd Massive MIMO Workshop from 3-5 October. The 2022 IEEE Future Networks World Forum (formerly 5G World Forum) is being hosted in Montreal, Canada (and virtually) from 12-14 October. Join the virtual 2nd Future Network Security Workshop from 26-27 October. The Connecting the Unconnected Summit is taking place virtually from 1-3 November. Join the 2022 5th IEEE 5G Workshop on First Responder and Tactical Networks, being hosted on 7 November at Johns Hopkins University near Baltimore, MD, USA.

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The IEEE Public Safety Technology Initiative is the global Center of Excellence for public safety agencies, suppliers, practitioners, researchers, and all industry participants to discuss and exchange ideas on how emerging technologies

can help public safety personnel be more effective in their work and support their sustained health and wellness. The initiative is hosting its first conference, Public Safety Technology and its Advancements, on 8 November at Johns Hopkins University near Baltimore, MD, USA. Visit the Public Safety Technology website for the latest information on this workshop.

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The third IEEE International Conference on Quantum Computing and Engineering (QCE22) or IEEE Quantum Week was held on 18-23 September in Broomfield, CO, USA. The successful event hosted over 600 in-person attendees in addition to the on-line participants. On-demand sessions will be available to view through November. Visit the QCE22 website for more information and to register for on-demand sessions.

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Artificial light generation is an inherent need of human beings and society. It impacts not only our performance, security, well-being, and health, but also our environment and ecosystem. The goal of the Smart Lighting project is to support the advancement of sustainable smart lighting system technology that would produce at any moment, the right light, where it is needed and when it is necessary while being safe, accessible, and affordable to end users. Learn more about the Smart Lighting project and stay in touch with our upcoming activities on our LinkedIn Page.

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The vision of this project is to coordinate/engage with small satellites (CubeSats) global development, develop ground stations to operate the satellites, and network the ground stations-while pursuing the maximum integration of global CubeSats development and space education activities, to inspire students and young engineers to pursue science and engineering career in the space sector. Visit the LEO SATS project website to learn more.

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The mission of the Telepresence project is to advance telepresence technology that would enable a user's remote presence at a different physical location: a) feeling as if being there, and b) having a similar effect as if being there - in appearance to others and in effectual action, via telerobotics. The project will focus on teleoperations,

including examples like operate/manipulate equipment as if present in cabin/control room, move heavy equipment, drive agricultural machines, and perform tele-medicine. Visit the Telepresence project website to learn more.

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IEEE Future Directions Events

2nd Massive MIMO Workshop
Virtual | 3-5 October 2022

2022 IEEE Future Networks World Forum (FNWF)
Montreal, Quebec, Canada + Hybrid | 12-14 October 2022

2022 IEEE Secure Development Conference (SecDev)
Atlanta, GA, USA |18-20 October 2022

2nd Future Network Security Workshop
Virtual | 26-27 October 2022

Connecting the Unconnected Summit
Virtual | 1-3 November 2022

2022 5th IEEE 5G Workshop on First Responder and Tactical Networks
Baltimore, MD, USA | 7 November 2022

Public Safety Technology and its Advancements
Baltimore, MD, USA | 8 November 2022

2022 IEEE 1st Global Emerging Technology Blockchain Forum
Southern California, USA | 7-11 November 2022

2022 IEEE 2nd International Conference on Intelligent Reality (ICIR)
Virtual | 14-16 December 2022

Activities in Our Graduated Technical Communities

The IEEE Brain Initiative was formed in 2015 to create a technical community to facilitate cross-disciplinary collaboration and coordination to advance research, standardization, and development of engineering and technology to improve our understanding of the brain to treat diseases and to improve human condition. IEEE Brain Initiative unites engineering and computing expertise across IEEE Societies and Councils relevant to neuroscience, and provides an avenue for IEEE to work with multiple constituencies in academia, industry and government to incubate and sponsor new activities, projects, and standards that facilitate bringing neurotechnology to market in an ethical and responsible manner. Visit the IEEE Brain web portal to learn more.

IEEE Cloud Computing is now the IEEE Technical Committee on Cloud Computing. The community provides a forum for members to broaden professional contacts, facilitates information exchange, and stimulates the growth of research, education, and industry in cloud computing. Visit the IEEE TCCLD web portal to learn more.

Visit Web Portal

The IEEE Internet of Things is one of IEEE's important, multi-disciplinary, cross-platform Initiatives. The Internet of Things (IoT) is one of the most exciting technological developments in the world today and the global technical community is coalescing around the thought-leading content, resources, and collaborative opportunities provided by the IEEE IoT Initiative. Visit the IEEE Internet of Things web portal to learn more.

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The intersection of medicine, life sciences, physical sciences, and engineering is a rapidly growing field, producing benefits for humanity and offering meaningful career paths. The IEEE Life Sciences Community brings together engineers, computer scientists, life scientists, medical practitioners, and researchers to advance the application of engineering and technology to the life sciences. Visit the LSTC website to learn more.

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The Task Force on Rebooting Computing (TFRC), housed within IEEE Computer Society, is the new home for the IEEE Rebooting Computing Initiative. Founded in 2013 by the IEEE Future Directions Committee, Rebooting Computing has provided an international, interdisciplinary environment where experts from a wide variety of computer-related fields can come together to explore novel approaches to future computing. Visit the IEEE Rebooting Computing website to learn more.

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Check out the new IEEE PES Grid Edge Technologies Conference & Exposition coming in 2023. This conference aims to provide an international forum for experts to promote, share, and discuss issues, solutions, and lessons

learned working at the interface of the electric grid. Visit the Smart Grid website to learn more.

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IEEE Smart Cities brings together IEEE's broad array of technical societies and organizations to advance the state of the art for smart city technologies for the benefit of society and to set the global standard in this regard by serving as a neutral broker of information amongst industry, academic, and government stakeholders. Visit the Smart Cities website to learn more.

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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 in the eLearning modules.

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The IEEE Sustainable ICT inititative's mission is to build a holistic approach to sustainability through ICT by incorporating green metrics through IEEE technical domains and seeks to 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 the IEEE Sustainable ICT Technical Community to help drive this very important topic.

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The IEEE Cybersecurity Initiative (CYBSI) is now the IEEE Computer Society's Technical Community on Security and Privacy (TCSP). Launched in 2014 by the IEEE Computer Society and the IEEE Future Directions Committee, TCSP's goal is to foster excellence in computer security and privacy research. Visit the TCSP website to learn more about this technical community's publications and sponsored conferences.

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The IEEE Transportation Electrification Community 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. Visit the TEC website to learn more.

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Open Call for Proposals

The IEEE Future Directions Committee (FDC) seeks to identify, develop, and promote projects that are value-added for IEEE and its members, bringing together multiple Societies and Councils to provide broad and deep perspectives on a particular topic, application, or technology. These projects range from short-term activities to reach a specific goal to Future Directions Initiatives seeking longer-term cross-collaborative engagement among industry, academia, and government striving to develop and deploy various future technologies.

You are welcome to submit new ideas via this form. For inquiries, contact IEEE Future Directions at ieee-fd@ieee.org.

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