IEEE Future Directions Newsletter

ISSUE 36 | April 2022

In this Issue:

IEEE Future Directions is pleased to share news on our IEEE Future Directions Corporate Partnership with Microsoft. We are working together on two upcoming IEEE Future Tech Forum roundtable events. One on responsible AI, the other on climate change. Please check out our complimentary recording of the last Future Tech Forum roundtable held 17 February, the *"Social Digital Twin,"* Digital Twin Roundtable — IEEE Future Directions. Moderated by Dr. Derrick de Kerckhove, the panel of experts focused on Digital Twins within society, the need for common sense among them, and their relationship within the metaverse(s).

Please get ready for IEEE Education Week taking place 4 - April. Check out the courses on our technologies, podcasts, webinars, and more. Future Directions Educational Offerings As part of IEEE Education Week, the Low Earth Orbit Satellites and Systems Project will host a live virtual discussion on the importance of space education for students in high school. Registration is now open for the discussion.

Highlighting one of two new initiatives launched in 2022 by IEEE Future Directions: Public Safety Technology

IEEE Public Safety Technology™

IEEE Future Directions established a task force in 2020 to study and identify public safety technology gaps and opportunities. It was then approved as a full initiative in January 2022. The purpose of the IEEE Public Safety Technology Initiative is to become 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 IEEE Public Safety Technology Initiative seeks the following goals:

- Investigate, identify, and prioritize opportunities for existing relevant technologies for solving real world challenges that public safety agencies are/will be facing
- Research new technologies for filling the gaps in public safety applications
- Launch and lead sustainable activities, products, and services to establish the use of technologies by public safety entities, and generate new revenue streams
- Engage, interact and collaborate, where appropriate, with public safety associations, industry consortia, academic and government entities

Visit the IEEE Public Safety Technology Initiative website to learn more.

Visit Web Portal

Technology, Policy and Ethics

IEEE Future Directions considers the reflection of technology through the lens of social implications a key tenet of our work as we incubate and promote technologies. We are currently seeking submissions of original content, articles of 800-1200 words on the social 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.

The Role of Novel Technologies in Combating COVID-19

By Himanshi Babbar, Roopali Dogra, Shalli Rani, *Chitkara University Institute of Engineering and Technology, Chitkara University, Punjab, India*

The recent coronavirus commenced in Wuhan at the end of 2019. Historical records provide details on three deadly disease outbreaks observed in 1918, 1957, and 1968. On 30 January 2020, the World Health Organization (WHO) declared a cause of concern regarding potential transmission of the coronavirus (COVID-19). A pandemic occurs when a disease is quickly transmitted across different countries and continents, and typically has extraordinary social and economic impacts. Furthermore, current globalization is fueled by growing urbanization, growing populations, and enhanced worldwide travel, which has turned many cities throughout the world into COVID transmission hubs.

Read More

Academic Misconduct: Nonscientific and Nonstandard Evaluation of Awards and Professional Titles

By Dr. Zhihan Lv, *Department of Game Design and Faculty of Arts, Uppsala University, Uppsala, Sweden*

There are many aspects to consider when evaluating a researcher's academic achievement, including the quality of the journals in which their papers were published, the number of times their papers have been cited, and any awards received by the researcher. For a teacher at a college or university, the promotion of a professional title based on an assessment of the academic results is also an aspect used for career advancement. Prudence, accuracy, and

authenticity are fundamental to academic research. The current academic paper review process leverages external reviewers and experts in varying fields. It is a very reasonable and reliable method to evaluate the contribution of the paper, and it can ensure the authenticity of academic work. The evaluation of awards and professional titles should be as prudent and standard as the academic paper review process. However, the evaluation of awards and professional titles at some research institutes is nonstandard and nonscientific.

Read More

Next Generation Technology Workforce—Precarious Work and Platform Regulation

By Dr. Lutfun Nahar Lata, *Institute for Social Science Research, The University of Queensland, Brisbane, Queensland, Australia*

Today's workforce has an abundance of computing resources. Cloud Computing, Digital Platforms, Big Data, and Computation Intensive automation have changed the traditional labor markets, and the rules that regulate the workforce. Companies such as Amazon, Facebook, Google, Airbnb, Uber, and Deliveroo use online structures that have opened up new forms of activities, and these structures tend to replace the traditional labor market relations. In particular, the "platform," "gig," "sharing," and "on-demand" economies have become increasingly important focuses of research, particularly on how intermediary platforms build, connect, and reconstruct the social relations among laborers, consumers, and businesses.

Read More

Activities in Our Current Technical Communities

IEEE BLOCKCHAIN™

Check out the new IEEE Blockchain Podcast Series where we interview top innovators, experts, and enthusiasts in the field. In our latest episode, we speak with JP Vergne, Associate Professor at University College London, School of Management. JP discusses his research on how blockchain technology can be employed to change how organizations are structured at the managerial level. He also explores blockchain as an underlying technology and the development of a new digital platform for creating end-user value as well as providing insights on the differentiation of decentralization and distribution. Listen now.

Visit Web Portal

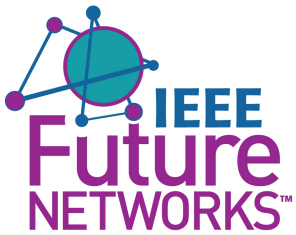
IEEE DigitalReality

Intelligent Reality (IR) advances human adoption of integrated Augmented, Virtual, and Mixed Reality (AR/VR/MR), with Artificial Intelligence (AI) and Machine Learning, Digital Twins, IoT, etc. IEEE ICIR 2022 seeks original, high-quality papers providing novel and valid contributions to the Intelligent Reality domain, including academic and industrial technical and scientific papers, and position papers with a focus on methodological and

theoretical advancements from multidimensional and interdisciplinary perspectives, and their application. Paper submission deadline is 30 September 2022. Click here to learn more.

Keep checking the upcoming IEEE Digital Reality webinars for the announcement of the next webinar pertaining to the Power of AI and Drug Discovery. This webinar, to be held on 14 April 2022, will feature guest speakers from Insilico Medicine.

Visit Web Portal



Is 2022 the year when that will change? "Yes!" , say some experts. And, "not so fast" say others. Ten experts have provided their forecasts for 5G in 2022 with the latest annual article, Ten Experts "Get Real" With 5G in 2022. The next Future Networks webinar is on 20 April on Renewable Energy-Enabled Wireless Networks from Mohamed-Slim Alouini. The last webinar is now available on-demand, Open RAN: Challenges and Opportunities for Future Wireless Networks. The latest workshop is available on-demand, Forging a Sustainable Path to 6G.

Visit Web Portal

IEEE Quantum Week 2022 is looking forward to your participation. The 3rd IEEE International Conference on Quantum Computing and Engineering (QCE22) will be held 18-23 September in Broomfield, CO, USA. Calls for Contributions are open and available with all the other information for our flagship conference on the QCE22 site. Upcoming submission deadlines for technical papers, posters, panels and more can be found on the event website.

Visit Web Portal

IEEE Future Directions Small Projects:

The Future Directions Committee has identified various technology areas that are currently in the "Small Project" phase. In this phase, each of the small projects is working towards the path of becoming an initiative in the near future. With volunteer leadership designated to each project, teams have been meeting regularly to ideate, build a framework, and rally the tech community (both internally and externally) on the respective area of focus. Visit the Small Projects website to learn more.

The Smart Lighting project will have a presence at the IEEE PES T&D Conference taking place in New Orleans, Louisiana, USA. Bob Karlicek will be giving a talk on

exploring the role of smart lighting systems in managing next-generation energy solutions on behalf of the Smart Lighting project. The talk will take place on Monday, 27 April, and the Smart Lighting project will be hosting a booth alongside Future Directions.

Visit Web Portal

During IEEE Education Week, the Low Earth Orbit Satellites and Systems Project will be hosting a panel discussion moderated by Mahjeda Ali. The panel will consist of 4-5 speakers and address the importance of space education for students in high school. Registration is now open for the discussion.

Visit Web Portal

During IEEE Education Week in April, the Telepresence project will be promoting a previously recorded talk on "Telepresence in Education, Hologram Professors" by Carla Victoria Ramirez Lopez. Carla Ramirez is the Leader of Educational Innovation and the Hologram Professor Initiative at Tecnologico de Monterrey. Within the Tecnologico de Monterrey, she has worked as a Creative and Technological Design Team Leader, Web Portals and Multimedia Director, Instructional Design Coordinator, and Tutor in graduated online courses. Carla is an involved volunteer with the Telepresence project working closely with the Roadmapping and Tele-education subcommittee.

Visit Web Portal

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. As an IEEE-wide effort, the 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.

Visit Web Portal

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.

Visit Web Portal

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 web portal to learn more.

Visit Web Portal

The IEEE International Roadmap for Devices and Systems™ (IRDS) 2021 Edition is Available. It provides a look at the future of the electronics, semiconductor, and computer industries, from application needs through devices and systems.

Visit Web Portal

IEEE Smart Grid has recently published two new white

papers. *Microgrids: Utility Challenges and Opportunities* and *Utility Business Case to Support Light Duty EV Charging* are both available on-line. IEEE Smart Grid provides expertise and guidance for individuals and organizations involved in the modernization and optimization of the power grid. Visit the Smart Grid website to learn more.

Visit Web Portal

IEEE 8th IEEE International Smart Cities Conference 2022 (ISC2) will be held 26-29 September in Paphos, Cyprus. The ISC2 Call for Papers has been announced. Visit the ISC2 CFP page for submission guidelines and important dates. Visit the Smart Cities website to learn more.

Visit Web Portal

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.

Visit Web Portal

The IEEE Sustainable ICT initatitive'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.

Visit Web Portal

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.

Visit Web Portal

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.

Visit Web Portal

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.

IEEE Future Directions Events

IEEE Education Week - Space Education Panel Discussion
Online | 7 April 2022

Power of AI and Drug Discovery Webinar
Online | 14 April 2022

Renewable Energy-Enabled Wireless Networks Webinar
Online | 20 April 2022

2022 IEEE Symposium on Security and Privacy (S&P)
San Francisco, CA, USA | 22-26 May 2022

2022 IEEE European Symposium on Security and Privacy (EuroS&P)
Genoa, Italy | 6-10 June 2022

2022 IEEE Symposium on Computer Security Foundations (CSF)
Haifa, Israel | 7-10 August 2022

IEEE Quantum Week 2022
Broomfield, Colorado, USA | 18-23 September 2022

IEEE 8th IEEE International Smart Cities Conference 2022 (ISC2)
Paphos, Cyprus | 26-29 September 2022

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

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

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

Subscribe to this Newsletter
Participants of current and graduated IEEE Future Directions technical communities receive this newsletter automatically. If you did not receive a copy of this newsletter directly, or you would like to learn more about a particular initiative, you can subscribe by joining an initiative.

View the Newsletter Archive
If you would like to read any of our past issues, you can find them here.

Contribute Content
If you would like to submit items to be considered for inclusion in this newsletter, please send an email to ieeefd-digital@ieee.org.