IEEE Future Directions

In this Issue:

IEEE Celebrating 140 Years of Advancing Technology for the Benefit of Humanity

IEEE is celebrating its 140th anniversary in 2024—a chance to recognize the great contributions of our IEEE members and volunteers around the world.

Since its origin over a century ago, IEEE and its members and volunteers have helped shape the world of technology—from computing and standards to WiFi and cell phones—up to the latest AI applications of today.

In continuous support of the innovations and contributions of our IEEE community, the IEEE Future Directions Committee (FDC), in association with Societies, Councils, and OUs, anticipates and determines the direction of existing, new, and emerging technologies and spearheads their investigation and development by IEEE.

It is a great time to celebrate how IEEE has made such a huge impact on the careers of our members and volunteers—as well as our everyday lives.

IEEE 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.

Blockchain Security Challenges Besides its Dominant Features

By Diya Adhikari and Suleman Khan

Blockchain (BC) has been a key emerging technology in its current state, and in the near future, it will make a huge impact with its fast-paced secure structure. Regardless of current security features, many BC security-related challenges need to be addressed. This work identifies some important areas that need to be considered for future research to make blockchain a dominant technology in the field of security.

We have provided basic working knowledge of blockchain to provide readers with a better understanding, and to foster discussions identifying security challenges requiring consideration from industrialists, researchers, scientists, and other technologists.

Read More

Exploring the Efficacy of Multimodal Feature Analysis for Accurate Detection of Deepfakes

By Asha S. and Varun G. Menon
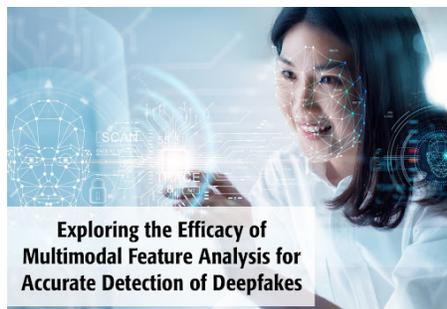
The development of Artificial Intelligence (AI) using Deep Neural Networks (DNN) has led to a surge in the creation of easier and faster convincing fraudulent forged images, videos, and audio. This has given rise to "deepfakes," which produce fake media by swapping one person's face with another in an image or video. This fraudulent content is crafted by combining details from one or more sources to give the impression of authenticity, even though they are fake.

The emergence of deepfakes has raised serious security and privacy concerns. Although they have been used for innocent entertainment purposes in movies or advertising, they are increasingly being used to spread misinformation or impersonate individuals with the intent of misrepresenting to damage someone's reputation.

Read More

Part 1: Smart Cities and Civic Identity

By Dr. Becky Hammons and Kienana Corcoran

Part 1: Smart Cities and Civic Identity

Cities develop naturally, and neither the initial purpose nor end toward which they are developed are truly innate or intrinsic. This article, shared in two parts, provides city planners and technologists with a perspective on emphasizing smart city solutions and initiatives in a community's unique identity.

To ensure technology is deployed properly in a manner addressing civic issues and the overall betterment of cities, then such implementations must be centrally focused on communities of persons as the most fundamental building block of such political units, anticipating the positive and negative impacts at the constituent level. A healthy level of public engagement in the affairs of technological civic development is not only right and just, but necessary.

Read More

IEEE Future Directions Events

IEEE Conference on Technologies for Sustainability (SusTech 2024)
14-15 April 2024, Portland, OR

2024 IEEE World Forum on Public Safety Technology (WF-PST)
14-15 May 2024 | Washington, D.C., USA

Activities in Our Current Technical Communities.

In collaboration with IEEE Educational Activities, IEEE Digital Privacy has created a course program on "Protecting Privacy in the Digital Age" which is available on the IEEE Learning Network. CEU or PDH credits are available after course completion.

Visit Web Portal

The 5G/6G Innovation Testbed is officially in Beta phase, and we are onboarding organizations that would like early access and are willing to provide feedback. We are also partnering with other testing groups that want to connect their physical test facility to our digital hub. Learn more at our website, where you can reach out if you want to connect!

Visit Web Portal

IEEE LEO SatS held its Fall 2023 Workshop on Ground Station Technologies. The on-demand version will be available soon, and look for more exciting projects in 2024.

Visit Web Portal

As a sponsor to the Metaverse Tunisian Summit, which took place in November 2023, we are happy to share with you the recordings of the event. Check out what they are doing to advance the concept of the Metaverse.

Visit Web Portal

New keynotes were announced for the inaugural 2024 IEEE World Forum on Public Safety Technology (WF-PST), dedicated to addressing current and future needs in public safety technology. Join us in Washington D.C., from 14-15 May, to learn about advancements in existing and emerging technologies, discover new research, and gain insights into breakthroughs shaping the future of public safety applications.

Visit Web Portal

The [IEEE Quantum Week Conference (QCE23)](#) came to a highly successful closure. With a keynote by Krysta Svore, Microsoft—Distinguished Engineer and VP of Advanced Quantum Development, and many other notable speakers, QCE23 had 153 technical papers, workshops, tutorials, posters, a career fair, a "meet the customer event", and a student industry mentorship program. Please plan for QCE24, 15-20 September in Montreal, Canada.

We're thrilled to congratulate the IEEE Quantum Initiative's graduation from Future Directions to become the Quantum Technical Community (QTC) in Computer Society effective 1 January 2024.

Visit Web Portal

The 2024 Sustainable Smart Lighting World Conference will be held November 11-14 in Eindhoven, The Netherlands. More announcements are coming soon. The Smart Lighting Initiative is a technical sponsor of this renowned event. Also in 2024, the Initiative will be starting a new roadmapping activity, and collaborating with the IEEE Reliability Society on a workshop at [IEEE ICPHM 2024](#) (Spokane Washington, June 17-19).

Visit Web Portal

The Initiative is kicking off 2024 with the planning of two in-person workshops to address critical topics in the quest for measuring and mitigating the effects of climate change: (1) developing a Roadmap to Low Carbon Emissions Building Materials and Architecture, to be held in collaboration with the IEEE SusTech2024 conference (14 April, Portland OR); and (2) Energy and Climate Technologies for the Arctic, to be held in collaboration with the University of Alaska Anchorage (May 2-5, Anchorage AK). Contact us if you would like to help plan and participate in those events, as well as the publication of a white paper on the progress and findings of the Initiative.

Visit Web Portal

The Future of Telepresence Workshop at IEEE SMC 2023 was held on 2-3 October in Honolulu, Hawaii. The workshop included paper presentations and roadmapping sessions for inputs to an initial white paper. The sessions included graphical facilitation by Peter Durand of Alphachimp.

Visit Web Portal

In 2024, the WPT Initiative will continue to bring together two major wireless power events (IEEE MTT-S Wireless Power Transfer Conference (WPTC) and IEEE Global Student Wireless Competition) while developing a portfolio of new activities, from the launch of a new Journal to worldwide collaboration on new industry standards.

Visit Web Portal

Discover Activities in Our Graduated Technical Communities

IEEE brain

IEEE BLOCKCHAIN™

IEEE Big Data

IEEE DigitalReality

IEEE CYBER SECURITY

IEEE CLOUD COMPUTING
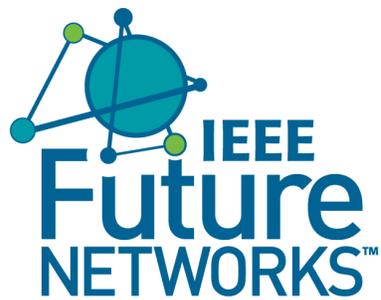
IEEE
rebooting
COMPUTING

IEEE
TRANSPORTATION
ELECTRIFICATION
COMMUNITY

IEEE
SUSTAINABLEICT

IEEE
SOFTWARE
DEFINED
NETWORKS

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.

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.