

In this Issue:

- Feature Article - 2023 Brings Two New Initiatives
- Technology, Policy and Ethics
- Activities in Our Current Technical Communities
- IEEE Future Directions Events
- Activities in Our Graduated Technical Communities
- Open Call for Proposals

Feature Article - 2023 Brings Two New Initiatives



The IEEE Future Directions Committee (FDC) is pleased to announce two new initiatives in 2023. These new initiatives continue FDC's focus on emerging technologies as well as leveraging current volunteer interest in these exciting new fields. Metaverse and Wireless Power Technology Initiatives have been approved to be the latest initiatives around emerging technologies.

The Metaverse Initiative plans to explore the various aspects and challenges of evolving a combination of technologies to create a seamless, persistent, and shared digital experience and applications. The Wireless Power Technologies Initiative, formerly referred to as Wireless Power Transfer, covers the interdisciplinary field of wirelessly supplying energy to electrical devices and systems.

Interested in joining one of these exciting new initiatives? Visit the [IEEE Future Directions website](#) to learn more and sign up today.

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](#).

Effective Spatio-Temporal Filtering for Progressive Radiation Dose Reduction in Cardiac Imaging — Part 2

By **Ayush Dogra** and **Sanjeev Kumar**, *OneCSIR- Central Scientific Instruments Organization, Chandigarh*

It is well-known that X-ray radiation is ionizing and carcinogenic in nature. As a result, low-dose X-ray imaging has been a recent trend gaining widespread popularity. Based on research statistics, each time X-ray imaging is performed, the patient becomes more likely to develop a malignancy. Considering extreme ethical and social responsibility, industry professionals are committed to decreasing the amount of radiation exposure in cardiac imaging as much as possible.

The continuous rhythmic cardiac motion exacerbates image noise while leaving arterial segments non-diagnostic, and the limited photon exposure generates streak artifacts and precipitates photons, or shot noise. Hence this highlights the need to design an efficient, yet computationally simple, algorithm for smooth workflow, specific modality, and diagnosis outcome.

In this paper, we propose a spatial-temporal filtering for progressive radiation dose reduction in cardiac imaging.

[Read More](#)

Preparing the Packaging Industry for Industry 4.0

By **Muhammad Usman**, *Entrepreneur in applied Data Science and Industry 4.0*

Industry 4.0, also known as the Fourth Industrial Revolution, is characterized by the integration of advanced technologies, such as the Internet of Things (IoT), artificial intelligence (AI), and robotics, into manufacturing processes.

The packaging industry is only one sector that has the potential to greatly benefit from these technologies. One of the major benefits of implementing Industry 4.0 technologies in the packaging industry is improved efficiency. For example, the use of robots and automation can help to increase production speed and reduce labor costs. Additionally, the use of IoT sensors and real-time monitoring can help to improve process control and reduce waste. As a result, companies can produce more products in less time, at a lower cost, and with higher quality.

[Read More](#)

Activities in Our Current Technical Communities



In collaboration with IEEE Educational Activities, we are happy to announce our first course on Digital Privacy. Explore the [Digital Privacy: Principles, Regulations, and Ethics course](#) to learn about concepts and common misconceptions surrounding privacy. The course will focus on common privacy principles, key drivers of digital privacy around the world, and ethical foundations of privacy to help practitioners make sound decisions in complex situations.

Visit Web Portal



The recordings from the Advances in Public Safety Technology Workshop from November 2022 are now available. Watch the [Welcome and Opening Richard Reed Keynote](#), the [Grayson Randall Keynote](#), and the [Public Safety Technology Application Advancements Panel](#). Read about the Public Safety Technology Initiative in the December issue of the [MGA Scoop](#). Interested in joining an initiative committee? Complete the [Committee Interest Form](#) to tell us your area of interest and join today!

Visit Web Portal



The 4th IEEE International Conference on Quantum Computing and Engineering (QCE23) will be held 17-23 September 2023 at the Hyatt Regency in Bellevue, Washington, USA. [Calls for contributions](#) for QCE23 are now live. [Visit the Quantum Week web portal](#) for requirements and upcoming deadlines on Calls for Technical Papers, Tutorials, Workshops, and more. QCE23 premier event is the leading multidisciplinary venue featuring quantum research, practice, applications, education, and training. [Visit the IEEE Quantum Web Portal](#) to learn more.

Visit Web Portal



New technologies, applications, and markets are driving a rapid evolution of the space sector, with new players and commercial interests emerging every day. In last month's edition of IEEE Spectrum, we learned how cell phone communications are now becoming part of the service Low Earth Orbit satellites (LEO SatS) can provide. IEEE Future Directions' LEO SatS Initiative coordinates the consolidation and expansion of the existing distributed LEO Satellites and Systems technical and educational activities. Its [latest educational workshop recordings](#) are now available. Visit the [LEO Satellites & Systems website](#) to learn more information about the project.

Visit Web Portal



As a new initiative for 2023, this effort will explore the various aspects and technological challenges as well as ethical concerns to evolve toward the Metaverse. The merging of the physical and cyberspace will provide a new user experience and opportunities for new applications and will require advances in a combination of technologies such as virtual reality, augmented reality, 3D modeling and animation, artificial intelligence, distributing computing and

brain-machine interfaces. Stay tuned to learn more about this initiative.

[Visit Web Portal](#)



This unique initiative aims to build a worldwide community of volunteers passionate about advancing knowledge in Smart Lighting Systems (SL) serving to better humanity. A humanitarian contest supporting the end of light poverty in remote areas of the globe is being actively developed, as a pillar of their mission. Plans for the project's flagship conference, [IEEE Sustainable Smart Lighting World Conference & Expo \(LS:18\)](#), are well underway to be held from 8-10 June in Mumbai, India.

[Visit Web Portal](#)



IEEE Telepresence held the first [IEEE Future Directions Symposium on Telepresence](#) in November 2022. The virtual event brought together experts in the fields ranging from TeleEducation, TeleHealth and TeleMedicine, to Ethics, Privacy and Entrepreneurship.

[Videos from the symposium sessions](#) are available on-demand.

Visit the [Telepresence project website](#) to learn more.

[Visit Web Portal](#)



Future Directions is excited to support the launch of this new initiative for 2023. Formerly called "Wireless Power Transfer", this project covers the interdisciplinary field of wirelessly supplying energy to electrical devices and systems. It has already recruited a strong group of researchers and industry professionals from around the world who aim to establish a broad portfolio of educational materials, standards, and global forums to tackle technological challenges. Learn more about this new initiative on the [Wireless Power Technologies website](#).

[Visit Web Portal](#)

IEEE Future Directions Events

[IEEE Sustainable Smart Lighting World Conference & Expo \(LS:18\)](#)

8-10 June 2023 | Mumbai, India

Activities in Our Graduated Technical Communities



The IEEE Blockchain Initiative (BLK) will be the hub for all IEEE Blockchain projects and activities. The BLK encompasses a comprehensive set of projects and activities supported by the following core subcommittees: Pre/Standards, Education, Conferences and Events, Community Development and Outreach, Publications, and Special Projects. Visit the [IEEE Blockchain website](#) to learn more.

[Visit Web Portal](#)



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 improve the 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.

[Visit Web Portal](#)



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 [IEEE Digital Reality website](#) to learn more.

[Visit Web Portal](#)



The IEEE Future Networks Technical Community will help pave a clear path through development and deployment of 5G and the great potential it enables, while envisioning the landscape of connectivity and applications beyond 5G. Recognizing that networking is larger than a single technology, standard, organization, or region, IEEE Future Networks is gathering the world's researchers, scientists, engineers, and policymakers from industry, academia, and governments to solve the challenges and reveal the opportunities associated with current and future networks. Visit the [IEEE Future Networks website](#) 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 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.

[Visit Web Portal](#)



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.

[Visit Web Portal](#)



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.

[Visit Web Portal](#)



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 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 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.

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.



© 2023 IEEE— All rights reserved.

[Privacy Policy](#) | [Contact](#) | [Unsubscribe](#)