IEEE Future Directions Newsletter

In this Issue:

- IEEE Quantum Week Is Almost Here!
- IEEE Future Directions Technical Communities - Renew Now for 2021
- Technology, Policy and Ethics
- Current Activities in our Technical Communities
- IEEE Future Directions Events

IEEE Quantum Week Is Almost Here!

Interested in exploring the future of quantum technologies? Don't miss **IEEE Quantum Week**, featuring the inaugural IEEE International Conference on Quantum Computing and Engineering (QCE), on 12-16 October 2020. This special virtual event offers a highly multidisciplinary forum focusing on advancing quantum technology research, development, applications, and training.

As the flagship conference of the IEEE Quantum Initiative, IEEE Quantum Week will bring together innovators from around the world to share their experiences, enthusiasm, and discuss challenges & opportunities across all aspects of quantum computing and related technologies.

IEEE Quantum Week's extensive program comprises 9-10 parallel tracks, including leading keynote presentations, tutorials, workshops, technical paper presentations, panels, posters, and more with interactive Q&A throughout. Additionally, birds of a feather and networking sessions will be held to further foster the quantum community. In total, IEEE Quantum Week features over 270 hours of programming. Recorded sessions will be available on-demand until 30 November.

Visit the IEEE Quantum Week website to learn more about this highly anticipated

event, as well as sponsorship and exhibitor opportunities. Registration is now open, so reserve your virtual seat today and join us in October. The quantum future is approaching -- be at the forefront at Quantum Week!

Register Today

IEEE Future Directions Technical Communities - Renew Now for 2021

In IEEE Future Directions, we're committed to bringing you the best knowledge, resources, and opportunities in emerging technologies within IEEE. As we evolve and expand our offerings, subscription to our current Future Directions Technical Communities for IEEE Society members will be free as a Society member benefit. IEEE Members and Non-members will pay a fee. These communities include: Blockchain, Brain, Digital Reality, Future Networks, and Rebooting Computing. Details of this change, including regular and student rates, can be reviewed as you renew your membership for 2021.

As a participant in our Technical Communities, you will receive access to our growing suite of content, including online courses, webinars, white papers, videos, and more at discounted rates.

Thank you for being a part of our Technical Communities. We value your involvement and look forward to your continued participation in IEEE Future Directions.

Renew for 2021

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.

Inclusive Privacy Consenting in Public Video Surveillance and Future Directions

Ankur Chattopadhyay, *Northern Kentucky University*, Jordan Sommer, *University of Wisconsin - Green Bay*, and Robert Ruska Jr., *Northern Kentucky University*

Mainstream public video-surveillance systems are not generally designed to provide accommodations for under-privileged and under-represented subjects. These subjects comprise physically-challenged individuals, visually-impaired people, and senior-citizens. With the recent emergence of the GDPR act, all surveillance data subjects, including these under-served populations, need to be offered an opportunity to provide consent, according to the Opt-in and Opt-out rule, regarding being recorded on closed-circuit televisions (CCTV) and other security cameras. Research advances in privacy-enhancing innovations and privacy-mediating features have helped visual-surveillance systems evolve towards offering more subject-centric privacy consenting options. However, these present state-of-the-art technologies do not account for the under-served people. In order to be more inclusive in its privacy-mediating design, a video surveillance system needs to address the difficulties posed by technologies to the under-served subjects. In this article, we discuss this potential gap in research work and explore the need of designing more inclusive privacy consenting functionalities within video-surveillance systems.

Read More

Cloud technologies: All-Cloud IT Operating Model

Dr. Petar Radanliev and Prof. Dave De Roure, *Department of Engineering Sciences, University of Oxford*

Why are the IT operational strategies transforming from data centers ownership into an all-cloud subscription?

The traditional IT operating models are slowly becoming obsolete in the new digital age. New 'all-cloud operations' emerge from the digital transformation and require a new mindset. In the all-cloud operations, developers and business executives translate the products, services, constraints, and security controls into cloud architectures and data models. As this transformation from capital intensive IT operations is evolving into low-asset, all-cloud digital IT operations, the role of IT operations manager is also evolving. This will inevitably cause some discomfort, but for those that can embrace these changes, the career opportunities will

amplify.

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Current Activities in our Technical Communities

IEEE DataPort™ is a 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 datasets, delivered to your inbox.

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In the latest **IEEE Talks Blockchain Q&A session**, Dr. Ramesh Ramadoss, co-chair of the IEEE Blockchain Initiative, discusses the evolution of the blockchain ecosystem, including emerging applications, standardization efforts, and opportunities for future growth and development.

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Don't miss the **2020 IEEE Brain Workshop on Advanced Neurotechnologies**! The workshop will highlight the development of novel technological innovations, including advancements in hardware and data science, and technologies that have demonstrated pre-clinical and clinical results in translational neural engineering. A virtual poster session will provide presentation opportunities for young researchers.

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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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During the IEEE Digital Reality September webinar, The Epistemology of Algorithms, featured speaker Derrick De Kerckhove discusses how much information pertaining to previous pandemics we should take into account in regards to the Coronavirus. Discover how the knowledge and experience of the accelerated Digital Transformation is in conflict with that of our past.

A recent article, derived from a previously published IEEE Digital Reality whitepaper, states "If you've used Alexa, Siri, or another virtual assistant, you've used Augmented Intelligence. Virtual assistants don't make decisions for you.

Instead, they provide the data you need when you need it." These types of devices leverage Machine Learning, AI, and other technologies to enhance human life, not replace it.

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Registration and access for the IEEE 5G World Forum 2020 is still available through 10 October, starting at US$75 (US$25 for students). Engage with on-demand presentations that include 12 Plenary Keynotes from technology thought-leaders from TU Dresden, U.S. National Science Foundation, ITU Standardization Bureau, Qualcomm, Intel, U.S. Federal Communications Commission, China Mobile, and many more. Also included are 20 tutorials, over 100 technical papers, workshops with papers and invited talks, industry panels, the Entrepreneurship and Innovations Forum, and the not-to-miss 2020 Worldwide 5G Industry Fora. Visit the IEEE 5G World Forum website to register today before it's too late!

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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 Science Technical Community (LSTC) fosters collaboration and communication among an array of IEEE Societies making contributions in the Life Sciences, to provide a broad-based home for IEEE members who are

interested in some aspects of the life sciences. Join the IEEE Life Science Community to stay connected and informed on research and developments as they unfold in this dynamic field.

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The IEEE Quantum Podcast Series interviews top subject matter experts in the emerging field of quantum computing, covering topics from quantum engineering to benchmarking, standardization, industry trends, and more. In the latest episode, Hausi Müller, Co-chair of IEEE Quantum, shares his thoughts on the general landscape of quantum computing, challenges and opportunities, and what the IEEE Quantum Initiative is doing to engage the quantum community at large.

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This year, the IEEE International Conference on Rebooting Computing (ICRC) will be a fully virtual conference held on 1-3 December 2020. ICRC is the premier venue for forward-looking computing, with emphasis on all aspects of the computing stack. Learn more at the IEEE ICRC website.

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The recently re-launched webinar series provided by the IEEE Smart Cities program features events focusing on technical and professional development, as well as current issues/hot topics in the smart cities scope of interest. Learn more about the webinar series and register. Complete the IEEE Smart Cities Webinar Application if you are interested in presenting.

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IEEE Smart Grid hosts a series of webinars on varying aspects of global grid modernization. Visit the Live Webinar Events page on the IEEE Smart Grid web portal to see the latest offerings, or browse the Past Webinars page to access previously recorded webinars on demand.

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The 2020 IEEE Conference on Network Functions Virtualization and Software Defined Networking (NFV-SDN), initially planned to be held in Madrid, Spain, will be a fully virtual conference on 9-12 November 2020. The conference fosters knowledge sharing and discussion on new approaches as well as work addressing gaps and improvements in NFV and SDN enabled architectures, algorithms, and operational frameworks for virtualized network functions and infrastructures.

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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 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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Are you interested in the field of transportation electrification? TEC coordinates broad and deep activities throughout 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 IEEE TEC.

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IEEE Future Directions Events

2020 IEEE 3rd 5G World Forum (5GWF), open from 10 September - 10 October 2020, Online

2020 IEEE International Smart Cities Conference (ISC2), 28 September - 1 October 2020, Online

2020 IEEE Healthcare: Blockchain & AI Virtual Series - Keynote & Invited Talks, 7 October 2020, Online

2020 IEEE Quantum Week, 12-16 October 2020, Online

2020 IEEE Brain Workshop on Advanced Neurotechnologies, 22-23 October 2020, Online

2020 5th IEEE International Conference on Rebooting Computing (ICRC), 1-3 December 2020, Online

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