Welcome!

IEEE IT Symposium

November 18, 2022

Live Stream from Seattle Washington

08:00 am PST IEEE Announcements, announcing our speakers and sponsors

Mike Brisbois | 708.668.5488 | mike.brisbois@ieee.org

08:10 am PST Mike Howerton, 'Courage in the Face of', Sr. Executive Coach, Transcend Business Solutions

Courage in the Face of Whatever, or how to step boldly into your flourishing.

With today's high workplace and market volatility, leadership is constant, but we tend to utilize it erratically. Leadership is foundational, but we treat it as circumstantial, allowing our leadership to be dependent upon things happening to us, rather than defining how our leadership is impacting our world. Mike's executive coaching is industry agnostic, as is the hand wringing, numbers crunching and self-protective conversations pervading our thought channels.

Mike Howerton

But as Mike will share, courageous leadership looks not for the self-protection in a tumultuous moment, not for retreat, but for the opportunity, for the advancement. Mike will leave you with four practical tools: 1) decide to advance instead of retreat, 2) know and live your values, 3) invest in your maximization, and 4) pursue a performance ecosystem. Be inspired and accept your marching orders for how to have Courage in the Face of Whatever.

Bio
Mike Howerton is Author, Speaker, Sr. Executive Coach with Transcend Business Solutions.

Please welcome…

https://www.linkedin.com/in/mike-howerton-54610a16b/

08:35 am PST Yu Yuan, 'The Metaverse', Founder & CEO Founder & CEO 0xSenses Corporation

Demystifying, Defining, and Developing the Metaverse Abstract: Metaverse has become a widely discussed and quoted term capturing more and more attention. There are different metaverses in the eyes of different people, but it is generally agreed that metaverse will have a profound impact on our daily work, play, and life, across all industries and sectors, reshaping the economy and society for all humankind. This talk will define metaverse in an inclusive way considering the origin and the latest developments and provide an overview of the metaverse technology landscape and outlook.

Dr. Yu Yuan

Dr. Yu Yuan, IEEE Board Director-Elect and IEEE Standards Association President-Elect, is a visionary researcher, inventor, practitioner, and entrepreneur in the areas of Consumer Technology, Multimedia/VR/AR, Connected/Automated Vehicles, IoT, and Digital Transformation. He co-founded Verse Maker, a metaverse enabling platform facilitating global collaboration and innovation on the metaverse by information exchange, expert network, and investment. He founded 0xSenses Corporation (also known as Senses Global Corporation or Senses Global Labs & Ventures in different countries), a multinational technology company specializing in Virtual Reality, Augmented Reality, and Human Augmentation. Dedicated to "Creating Better Worlds" as its long-term vision, the company is developing technologies, infrastructures, ecosystems, and resources needed for massively multiplayer ultra-realistic virtual experiences. The company is also engaged in technology consulting, technology transfer, and system integration services to help with the Digital Transformation of its clients in various industries. It has been proactively supporting standards development for emerging technologies (VR/AR/MR/XR, Blockchain, AI, IoT, Big Data, Digital Twin, Smart Lifestyle, etc.) in collaboration with many other companies and institutions. Prior to this he worked for IBM Research as a research scientist and was a key contributor to IBM's Cell Broadband Engine, Smarter Planet, and IoT initiative. He has been a passionate volunteer in various leadership positions at IEEE and other professional organizations. His outstanding service in IEEE standards activities at different levels (working groups, standards committees, and governance at higher levels) has been widely appreciated by standards developers, individual members, and entity members. He is also serving as Chair of IEEE Consumer Technology Society Emerging Technology Standards Committee (CTS/ETSC), Founding Chair of IEEE Metaverse Standards Committee (CTS/MSC), Chair of IEEE Consumer Technology Society Electronic Games and Sports Standards Committee (CTS/EGSSC), Vice Chair of IEEE Photonics Society Standards Committee (PHO/SC), Secretary of IEEE Consumer Technology Society Blockchain Standards Committee (CTS/BSC), Chair of IEEE VR/AR Advisory Board, Member-at-Large of IEEE Consumer Technology Society Board of Governors, Corresponding Member of IEEE Technical Activities Board Committee on Standards, and Member of IEEE Strategy and Alignment Committee. He has a Ph.D., an M.S., and a B.S. in Computer Science from Tsinghua University.

https://www.linkedin.com/in/dryuyuan/

09:00 am PST Malik Ishak, 'Wireless Fiber Grids through Lighting for Smart City Broadband and IOT', Director, Smart City Connectivity

"Brining Gigabit Speed Connectivity to the street level" How cities and utilities can quickly, and cost effectively deploy gigabit speed networks using existing assets to help close the connectivity gap and prepare for the next generation of high bandwidth smart city applications.

Malik Ishak

Bio
Director of Smart City Connectivity, North America

Signify (BrightSites)

Malik Ishak serves as Director of Smart City Connectivity for the North America within Signify's BrightSites business unit. Mr. Ishak possesses over 20 years of telecoms experience (gained both nationally and internationally) from his tenure with multinationals including Sprint, Andrew Corporation and CommScope where he took new and innovative telecom solutions to market and led teams globally. Since joining Signify in January 2021 Mr. Ishak secured the first North American deployment of the BrightSites innovative last mile Broadband Luminaire solution (at the VA Smart Community Testbed in Stafford County). Mr. Ishak is working with municipalities, utilities, neutral hosts, MNOs, ISPs and IOT applications layer providers to support the deployment of Smart City solutions throughout North America.

Please Welcome…

https://www.linkedin.com/in/maliktech/

09:25 am PST Máire Sogabe, Cybersecurity & Compliance, Generate Capital, Risk Manager

The energy network is transforming. Change is happening rapidly across all sectors. The grid is becoming more intelligent, sophisticated, digitized, and connected. Energy resources are more diverse and distributed. The geopolitical order is changing as we move away from fossil fuels to other sources of energy. There are more bad actors, more capabilities, and greater connectivity. All of these changes drive a need to rethink and refocus our cybersecurity strategy to drive resiliency.

Máire will discuss how important it is to plan for these changes and build cybersecurity programs that are sustainable and resilient.

Máire Sogabe

Key considerations include:
- understanding the risk - what are you trying to protect and from whom?;
- building a culture of security;
- designing with security in mind; and,
- navigating the regulatory environment.

Bio
Ms. Sogabe is a cyber security leader with extensive experience securing IT & OT environments. At Generate, she leads Security & Compliance where she is building a security program that proactively manages risk, ensures compliance, and adapts to evolving threats.

Generate is a dedicated sustainable infrastructure platform. Generate builds, owns, operates, and finances affordable and reliable infrastructure solutions for clean energy, waste, water, transportation,, and smart cities infra techs. We partner with 50+ project developers and tech companies to build more than 2000 assets.

Prior to joining Generate, Máire worked as a Cyber Security Consultant at Engie where she worked on aligning the IT digital security program to the NIST CyberSecurity Framework to ensure their IT and OT assets across North America were secure and resilient. Prior to Engie, she worked at Pacific Gas & Electric (PG&E) where she managed strategic initiatives to protect PG&E's critical infrastructure, information assets, and business operations for the Chief Security Officer. While at PG&E, she also implemented complex technology solutions for the electric, gas, and nuclear business to advance digital transformation, and enable next generation energy management and the Grid of Things. She managed one of the largest, most complex Utility GIS implementations in North America.

She is a two-time energy hackathon winner. She was recognized as one of the "Silicon Valley 50" by the Irish Technology Leadership group for her leadership in technology.

Máire is an "In Residence Thought Leader" for the Munster Technology University M.Sc. in FinTech Innovation program in Ireland. She holds a M.A. in Community Development from the NUI Galway, and a M.Sc. in Information Systems from Golden Gate University, in San Francisco, California.

Please welcome…
https://www.linkedin.com/in/mairesogabe/

09:50 am PST Darrell Ross, 'Attribute Based Access Control', Senior DevOps Engineer, Okera

He will speak about Attribute Based Access Control (ABAC) and why it is the future for data access management. He will provide an example of a large sophisticated RBAC system he built at a previous company and how ABAC could have saved him so much time and money.

Okera's president has previously marketed in the AMI space.

Darrell Ross

Bio

Darrell Ross has an undergraduate degree in computer engineering from University of California at Santa Cruz and a master's degree in math from Humboldt State University. He spent 8 years working full-time as a software engineer for Milsoft Utility Solutions, building software used by electric power utilities to manage their electrical distribution networks. To become a subject matter expert in power systems software, he completed a master's degree in electrical engineering at the University of Washington 2017. Darrell also received his EIT certificate in Power Engineering in June 2016. He has been an IEEE member since 2000 and an IEEE PES member since 2009. He has been Secretary for the IEEE PES Seattle Chapter for three years getting to know the greater Puget Sound area power industry.

After his time at Milsoft, Darrell spent two years working in Big Data Platform at SAP Concur followed by three years in Cybersecurity for JP Morgan Chase & Co. He joined Okera in April 2022 where he has become lead of the DevOps department driving automation across the company.

He spends what spare time he has with his wife and three kids, coaching youth robotics, and enjoying the PNW.

Please welcome…

https://www.linkedin.com/in/darrellaross/

10:15 am PST Perry Pederson, 'Hardware only Controller', Senior Cybersecurity Consultant

Hardware only Controller

General-purpose computation has improved the lives of billions around the globe. Critical infrastructures, to include the power grid, nuclear power plants, and manufacturing depend upon the ubiquitous use of networked computerized devices. Due to the commodity components used in their design, these devices have excess capabilities and processing capacity that provide a larger attack surface. To reduce this attack surface, the author describes a prototype of a hardware-only controller, a deterministic system, that performs its intended function, and nothing else. In other words, because it contains no software, it cannot be reprogrammed. The paper posits this device as a viable

Perry Pederson

replacement for software programmable controllers and describes future research paths.

Bio

Mr. Pederson is a strategic thinker in technology R&D and cyber security spanning 40 years in the public and private sectors. He has worked for agencies such as the DoD, DHS, DOE, and the NRC where he helped shape the regulatory framework for cyber security. Most notably as the Director for the Control Systems Security Program at DHS, he managed the Aurora project where a major vulnerability to rotating equipment (e.g., diesel generators) was demonstrated at Idaho National Lab.

https://www.linkedin.com/in/perrypederson/

10:40 am PST James Kempf, 'Blockchain Transactive Energy and the Electric Grid', Kempf and Associates

Transactive energy was originally proposed as an alternative to the traditional optimal control-based mechanisms for balancing supply and demand in the grid. The proposal was based on a grid architecture scenario where the grid becomes more and more decentralized, with hundreds of thousands of DERs and millions of flexible loads, making the solution of the optimal control problem increasingly intractable. Market-mechanisms such as transactive energy have been successful in many areas in balancing supply and demand, and market-mechanisms have been a pillar of the wholesale power market since the 1990s. While the original concept was premised on using a centralized database, decentralized ledgers such as blockchains provide an even better base, since they can accommodate additional participants in the business ecosystem such as aggregators while

James Kempf

building trust between the ecosystem participants. In addition, they can be deployed in a decentralized fashion down to a single building or small community solar deployment, a deployment architecture that is well-suited to the decentralized nature of DERs and flexible loads. In this talk, we'll briefly review the history of transactive energy (BCTE), discuss the three basic technologies underlying blockchain, distributed ledgers, and tokens, and then explore some BCTE use cases that are being or could be deployed today and some examples of organizations deploying BCTE solutions.

In this talk, we'll briefly review the three drivers of grid modernization, review transactive energy and how blockchain can be used to implement transactive systems, explore a few blockchain transactive energy use cases, and look at a few blockchain transactive energy pilots and projects currently ongoing.

Bio

Dr. James Kempf graduated from University of Arizona with a Ph.D. in Systems Engineering in 1984 and immediately went to work in Silicon Valley. Since then, he has worked for a variety of large tech companies, including Sun Microsystems, NTT Docomo, Ericsson, Equinix, and VMWare, mostly in research, on topics including operating system, networking, cloud, and blockchain. Dr. Kempf started part time consulting with renewable energy startups on cloud computing and networking technology in 2016, and was an advisor to PV Complete, Extensible Energy and other cleantech startups at the Powerhouse Solar Incubator in Oakland from 2016-2019. He has served on the Powerhouse Fund technical due diligence team and the Powerhouse Connector team, connecting with startups looking for help with cloud and networking issues for the DOE America's Solar Prize. In 2020, Dr. Kempf started full time consulting on ICT systems for building decarbonization and renewable energy, and has consulted for ExtensibleEnergy, Community Energy Labs, and Whygrene. He has also volunteered with the IEEE Blockchain Transactive Energy task force since 2019 and was a member of the team that coauthored the task force's whitepaper, and with Clean Coalition, as a project manager on their joint project with Electriq Power. Dr. Kempf is the holder of 26 patents, the author of 56 technical papers, 3 books, and most recently one of four co-authors of "Digitalization of Power Markets and Systems Using Energy Informatics" published by Springer in 2021.

https://www.linkedin.com/in/james-kempf-9011a42/

11:05 am PST Abhishek Bafna, 'Amazon Halo', Machine Learning Scientist

In this talk, the speaker shall provide a high-level overview of the current scope of application of machine learning in healthcare. He shall also delve into a more specific context of signal processing and machine learning algorithms in wearable devices and personal health tracking. Ways to harness and leverage the huge amount of digital clinical data shall be explored. The speaker shall also discuss the current challenges faced by the growth of machine learning in this domain. Finally, potential solutions, advancements and open areas for further research and development shall be highlighted.

Abhishek Bafna

Bio

Abhishek Bafna is a machine learning scientist at Amazon working in the space of biometric-based algorithms for wearable devices. He has background in signal and image processing focused on medical imaging and clinical healthcare. He has developed algorithms in multiple modalities including ultrasound imaging, automated analysis of 2D/3D CT/MRI images and angiograms to detect affected tissue areas and lesions. He has also developed NLP based healthcare applications effective in predicting adverse patient conditions by leveraging unstructured text data.

https://www.linkedin.com/in/abhishekbafna/

11:30 am PST Hoot Royer, 'How to Plan a Successful IT/OT Environment Through Thoughtful Planning'

In my presentation, I'll cover current considerations when planning for IT/OT integration (or if it's even necessary), compliance, and security considerations.

Hoot Royer

Bio

IT/OT strategy and security consultant with experience as designated NERC CIP Sr. Manager. Currently working within the electric utility space offering telecommunications, compliance, cybersecurity, and IT support and strategic planning.

BS in Information Technology from Western Governors University. Certifications include Project Management Professional (PMP), Certified Information Security Manager (CISM), ITIL, GIAC Global Critical Infrastructure Professional (GCIP), and others.
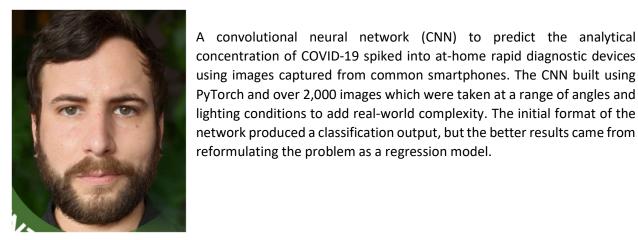
Please welcome…

https://www.linkedin.com/in/hoot-royer/

11:55 am PST IEEE Prize Pack Give-away

$50 gift card to Starbucks

12:05 pm PST Daniel Leon, Convolutional Neural Network using PyTorch Software

A convolutional neural network (CNN) to predict the analytical concentration of COVID-19 spiked into at-home rapid diagnostic devices using images captured from common smartphones. The CNN built using PyTorch and over 2,000 images which were taken at a range of angles and lighting conditions to add real-world complexity. The initial format of the network produced a classification output, but the better results came from reformulating the problem as a regression model.

Daniel Leon

Bio
Applied Mathematician: developing data-driven models to provide insight informing improved outcomes; using both traditional statistical methods and the latest in machine & deep learning techniques, combined with an understanding of computer architecture that allows me to utilize the high-performance computing (HPC) toolkit.

• Experienced project lead in multidisciplinary R&D lab developing consumer-ready diagnostic devices on multi-million-dollar NSF and NIH funded research projects.
• Over 10 years of experience with experimental design, hypotheses testing, causal inferencing.
• Resourceful and highly motivated problem solver and life-long learner with strong communication skills.

Please welcome…

https://www.linkedin.com/in/daniel-leon86/

12:30 pm PST Gerry Vurciaga, Grid Modernization & Cybersecurity, Innovative Executive, Siemens

OT SOC as a Service – Cybersecurity for Critical Infrastructure. SOC as a Service approach for Cyber Secure Substations. Information about cyber-attack vectors within a substation environment and means to address these threats. Information about a Siemens mature technology that provides Intrusion Detection System and Advanced Firewall Protection utilizing third-party partner solutions to combat cyber-attacks. Additionally, information on how SOCaaS helps utilities achieve NERC CIP Compliance and can reduce O&M costs.

Gerry Vurciaga

Mr. Vurciaga is a Business Innovations Director.
As an industry veteran, he embarked on creating an "Energy Opus." The time was ripe to leverage his knowledge, capabilities, and industry relationships to make his contributions as a citizen of this planet. He is passionate that one person can make a difference and with his friends, colleagues, and collaborators his "Energy Opus" will provide sustainable solutions for Utilities, Island Communities, School Districts, Universities, Military Bases, and First Nation Communities.

Please welcome Gerry Vurciaga…

https://www.linkedin.com/in/gerry-vurciaga-5baa6a1/

12:55 pm PST Jihoo Brain Park, Software Engineer, Microsoft

Data driven decision making

Jihoo Brian Park

Bio

Experienced robotics researcher with a demonstrated history of working in the tech industry. Skilled in software design pattern, algorithm design, cloud computing, parallel programming. Strong research professional with a bachelor's degree focused in Computer Science and Computer Systems Engineering from Rensselaer Polytechnic Institute.

Please welcome…

https://www.linkedin.com/in/jhbp/

1:20 pm PST Merrick Watchorn, 'Cyber Threats', IEEE Sub-Committee Chair for Quantum Cyber Security

My session will address the Quantum Resistant and Resilience (QRR) concepts that are being explored by my IEEE Sub-Committee and how the Hack Now Decrypt Later (HNDL) attack-pattern will shape the future of Cyber-Threat Intelligence aspect of legal compliance for organizations transnational, federal, state, and local governments. The potential realization of quantum threat landscape and how the IEEE is working to build use cases for theory exploration and conceptualization of scientific cyber theory to be developed

Dr. Merrick Watchorn

Bio

Dr. Merrick S. Watchorn, DMIST current research is focused on quantum information science, cloud computing, cybersecurity, and open-source intelligence technologies. He is a pragmatic subject matter expert, blending his academic success with nearly three decades of government and commercial experience. He also provides a myriad of services within the Cybersecurity industry based on his sixteen-years of active service in the United States Navy (USN) and the last several within the United States Government (USG). His work background included formal training in semantic ontologies, Big Data analytics, machine learning and artificial intelligence methods, theories, and cognition. As a co-founding member of the Quantum Security Alliance (QSA), he serves as Chair for the Security Reference Architecture (Q-SRA). He has expansive computer and systems experience, including business systems development, complex networking, database management, and advance programming requirements in classified and unclassified programs. He has proven experienced team leader, supervisor, and resource manager; with extensive inter-agency experience, while acting as a senior military liaison for all branches of the Department of Defense; including Senior North Atlantic Treaty Organization personnel. He has worked in and around the Washington, DC metropolitan area for the last ten years and provided support for numerous government agencies in distinct roles. He is a former U.S. Military Service member with several years of work in and around the Department of Defense (DoD), Department of Commerce (DoC), Intelligence Community (IC), and Pentagon Force Protection (PFP). He has broad experience as a government certified Automation Data Protection Officer (ADPO), Information Security Systems Officer (ISSO), and Information Security Systems Manager (ISSM), and acted as a directorate level Security Officer for the DoD.

Please Welcome…

https://www.linkedin.com/in/watchorn/

1:45 pm PST Indu Rani Porwal, 'Best Practices Software Development', Senior Manager development IEEE

The talk will focus on key principles of High-Performance Team and what are the best practices to follow in each phase of software development life cycle

Indu Rani Porwal

Bio

Ms. Porwal has 19+ years of Solutions development experience with 14 years in leading teams. She is an authentic, empathetic, emotionally intelligent and result oriented leader. Her primary experience is in leading development of IT solutions involving requirement gathering, analysis, application system architecture, design, development, project planning and execution, resource planning and management

She defines and contributes to overall product quality via strong leadership, technical design, code analysis and reviews, teamwork and managing relationship with business users.

Her key technical skills include Web applications development using latest User interface and Java related frameworks with Cloud based products and Technologies.

Her values include- Kindness, Compassion, Gratitude, Walk the Talk, Service, Innovative, Creative, Growth (Self & Community), People focused (Users, Customers, Team).

Please welcome…

https://www.linkedin.com/in/induporwal/

2:10 pm PST Erin Pak, 'Marketing Approach to Cyber Security, Flexential

Have you ever wondered how the evolution of the monetization of cybercrime came about? For many companies, the answer is no. Decision-makers buy into the idea that disaster recovery solutions are expensive, inconvenient and require a lot of internal resources and expertise – and risk remains high. We look at current trends, data to back up our quotes, and offer what other competitors don't. We make it easy and educate the customers. Learn to market current trends and stand out above the rest.

Erin Pak

Bio

Digital Marketing manager for Flexential.
Erin Pak is a marketing guru who believes in disrupting the orthodox of marketing. She excels in creating brand awareness, creating engagement, and leveraging changes to make brands stand out. Erin brings over 15 years of transforming marketing experience and began her career at the start of the e-commerce era. Her keen sense of all-encompassing marketing plans enables her to compassionately understand the goals and wants of a B2B world. Erin is currently overseeing Demand Gen at Flexential where she created FlexTalk, a tech-based fireside chat discussing solutions with industry experts, customers, and partners. You can catch her OnDemand FlexTalk episodes here. Marketing Approach to Cyber Security Have you ever wondered how the evolution of the monetization of cybercrime came about? For many companies, the answer is no. Decision-makers buy into the idea that disaster recovery solutions are expensive, inconvenient and require a lot of internal resources and expertise – and risk remains high. We look at current trends, data to back up our quotes, and offer what other competitors don't. We make it easy and educate the customers. Learn to market current trends and stand out above the rest.

Please welcome…

https://www.linkedin.com/in/erin-p-7283a7129/

2:35 pm PST Salute to our speakers Special Presentation

Thank You!

for being part of our

IEEE IT

Symposium 2022

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