



IECON 2022

48th Annual Conference of the
IEEE Industrial Electronics Society
October 18-21, 2022 | Brussels

Industry Forum

IEEE IECON 2022 will host three Industry Forum sessions during the conference, addressing an impressive variety of themes: Digital Health, Industrial Communications and Electronics Technology Trends, and Policies and Direction in European Innovation. Industry Forum is an IES program for Industry to engage with research in a productive manner. Industry speakers are invited to discuss industry, technology directions, and, most importantly, challenges for the companies. These presentations inform the attendees on the vision and application of technologies in business and what challenges companies are encountering. The forum also offers the opportunity for researchers to study the particular challenge and know the contact in the companies should they have a solution that the company might utilize. We want all conference attendees to engage in the Industry Forum and listen to the presentations of our industry speakers so all communities can benefit.

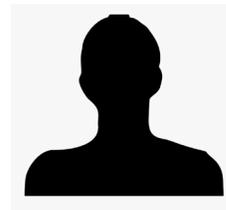
Organizers



Michael Condry
ClinicAI
IEEE Life Fellow



Victor Huang
Sage Technology
Resources
Partner



Stamatis
Karnouskos
SAP

Session 1 Strategies and Innovations in Digital Health

2:00– 3:30 pm CEST, Tuesday, October 18, 2022

Chair: Dr. Michael Condry, ClinicAI

This Industry Forum session is a panel that reviews the work done for the Health Informatics workshop and considers the ways that industrial situations can be impacted. Industry 4.0 focuses in improved industry production and operation with cyber-physical technologies. Conceptually, similar methodology applies to human health. This is critical to industry both from an employee aspect and customer. A company must always consider the health of their employees in their industrial environment. In addition, industry has observed detecting impacts to individuals from industry products has resulted in great loss to companies. With these technologies this impact can be discovered earlier and addressed pro-actively reducing losses to the company.

These are just some on the areas the panel will discuss including how standardization and requirements can assist in making this overall needed data available to industry to analyze.

Speakers



Dr. Gore Datta
FHL7, Visiting
Scholar
**University of
California,**



Dr. Christoph Fischer
Principal Systems
Architect
Roche



Dr. Robert Stegwee
Strategic Consultant for
Health IT
**Chair of CEN/TC 251
Health Informatics**



Gilles Lunzenfichter
CEO
Medisanté Group

2:00 – 2:05 pm **Opening Remarks**

Dr. Stamatis Karnouskos, VP, Industry Activities, IES

Talks

2:05 – 2:15 pm Talk 1: An Overview of IES Digital Health Informatics Workshop

Dr. Michael Condry, ClinicAI

Abstract: Workshop brief summary and potential impact on Industrial Electronics

Bio: Michael Condry, IEEE Life Fellow, IES Senior AdCom, member of Computer, TEMS, CTSoc and EMBS. Consultant, ClinicAI Board advisor, former CTO Intel Client Division, history including industry and academic positions. More BIO see <http://www.condry.org>

2:15 – 2:25 pm Talk 2: DISRUPTIVE TECHNOLOGIES MEETS GLOBAL DEMAND – The World of Mobile and Emerging Technologies

Dr. Gora Datta, University of California, Berkeley

Abstract: With the phenomenal rise of mobile devices & smart phones globally in the past few years, we have now entered the digital age – the agricultural age, the scientific age, the industrial age, the information age and now the mobile age! Move over chalk & slate, paper & pencil, keyboards & laptops, here comes “swish, swipe & tap” on a mobile device. “Beam me up Scotty!” The talk will also touch upon a wide-ranging topics and applications of Blockchain; AI/ML/ES/AS and the emerging field of Data Science; VR/AR/MR/XR realities to avatars, Drones & Robots to 3D-printing to micro-controller boards & single board computers; innovations in medical devices & mobile health apps; big data, cloud computing, edge/fog computing to IoT...smart pandemic management to air quality management.....a global perspective of advancing technology for the benefit of humanity.

Bio: Gora Datta, Fellow HL7; Visiting Scholar at University of California Berkeley on Digital Health; founding co-Chair HL7 Mobile Health Workgroup, founding-Covenor ISO/TC215 Traditional Medicine, founding-Chair IEEE Blockchain Initiative Healthcare. <https://www.linkedin.com/in/goradatta/>

2:25 – 2:35pm Talk 3: Title pending

Christoph Fischer, Roche

Abstract: pending

Bio: Christoph Fischer, Dr. rer. medic., Principal Systems Architect & Product Cybersecurity Specialist at Roche Diabetes Care. Active contributor of IEEE 11073 PHD WG, Bluetooth SIG MedWG, and PCHA. (ISC)² Certified Systems Security Architecture Professional (CISSP, CISSP-ISSAP), Certified Agile Regulatory Specialist™ (CARS), and Certified SAFe® Architect (ARCH, SA, SP). See <https://www.linkedin.com/in/christoph-fischer-00206b54/>

2:35 – 2:45 pm **Talk 4: Patients in charge of their health data in the EU**

Dr. Robert Stegwee, Chair of CEN/TC 251 Health Informatics

Abstract: Pending

Bio: Pending

2:45 – 2:55 pm **Talk 5: Medical IoT: Why Healthcare is lagging behind other Industries in IoT Adoption**

Gilles Lunzenfichter, Medisante Group

Abstract: Healthcare is lagging behind other industries in terms of IoT adoption. How come? While the pandemic is expected to act as a booster of medical IoT in the wake of tele-consultation, this presentation outlines the major obstacles that prevented healthcare from adopting IoT so far. While IoT could certainly be as valuable for healthcare providers as it has been for other industries, it seems that automotive or utilities – that are organized in oligopolies – have been more IoT-friendly so far. What can the healthcare industry learn though from connected cars to be successful in connected care? The talk will outline how abstracting in a single cloud a broad range of devices designed for telehealth has the potential to completely redefine device interoperability and management across vendor and country silos while keeping the device experience of care teams and their patients simple and secure.

Bio: Gilles Lunzenfichter is the CEO of Medisanté Group AG, an innovator in medical IoT. He wants to put the internet of things (IoT) to work for care teams by leveraging the cloud and cellular IoT in an open manner for non-identifiable device data while leaving the data sovereignty of sensitive data to healthcare providers and their health IT systems.

2:55 – 3:30pm **PANEL DISCUSSION: Strategies and Innovation in Digital Health**

Chair: Dr. Michael Condry, ClinicAI

Panelists: All Speakers

Session 2 New Infrastructure for Digitalization and Sustainability

2:00 – 3:30 pm CEST, Wednesday, October 19, 2022

Chair: Dr. Victor Huang, Sage Technology Resources

The IES prides itself with its diverse and highly technical fields of interest in industrial electronics technologies. This session explores three presentations of the emerging advances in our technical fields of tele-and industrial communications, and powering e-mobility. The session has gathered three industry experts covering the field of the emerging 6G telecommunications technologies, and industrial wireless in the forefront of its applications, and a look at industrial innovations in the powering of today and tomorrow's e-mobility in terms of fast charging applications for the world-wide conversion to e-transportation and electric vehicles.

Speakers



Dr. Chih-Lin I
Chief Scientist
China Mobile
Research Institute



Dr.-Ing. Bernard Wille-Haussmann
Head, Smart Grid
Planning & Operations
Fraunhofer Institute for
Solar Energy Systems ISE



Dr. Zhibo Pang
Sr. Principal Scientist
ABB/KTH



Dr. Dietmar Bruckner
Unit Manager
Software
B&R Industrial
Automation

2:00 – 2:05 pm **Opening Remarks**

Dr. Stamatis Karnouskos, VP, Industry Activities, IES

Talks

2:05 – 2:25 pm **Talk 1: Green Technologies for Sustainability**

Dr. Chih-Lin I, Chief Scientist, China Mobile Research Institute

Abstract: Pending

Bio: Dr. Chih-Lin I is CMCC Chief Scientist of Wireless Technologies. She received her PhD EE from Stanford University. She has won She has won the 2005 IEEE ComSoc Stephen Rice Prize, the 2018 IEEE ComSoc Fred W. Ellersick Prize, the 7th IEEE Asia-Pacific Outstanding Paper Award, and the 2015 IEEE Industrial Innovation Award for Leadership and Innovation in Next-Generation Cellular Wireless Networks. She is the Chair of O-RAN Technical Steering Committee and an O-RAN Executive Committee Member, the Chair of FuTURE 5G/6G SIG, the Chair of WAIA (Wireless AI Alliance) Executive Committee, an Executive Board Member of GreenTouch, a Network Operator Council Founding Member of ETSI NFV, a Steering Board Member and Vice Chair of WWRF, a Steering Committee member and the Publication Chair of IEEE 5G and Future Networks Initiatives, a member of IEEE ComSoc SDB, SPC, and CSCN-SC, and a Scientific Advisory Board Member of the Singapore NRF. She has 100+ patents, published 200+ Journal and conference papers, and 3 books. She is a Fellow of IEEE and a Fellow of WWRF. Her current research interests center around ICDDT Deep Convergence: “From Green & Soft to Open & Smart”.

2:25 – 2:45 pm **Talk 2: Electric Vehicle Supply Equipment – Testing of Smart Grid Functionality**

Dr. -Ing. Bernhard Wille-Hausmann, Fraunhofer ISE

Abstract: The share of electric vehicles (EV) in transportation is increasing steadily and fossil fuels are replaced by electricity. In order to fulfill environmental requirements this electricity should come from renewable and volatile sources. As EVs are big consumers it is consensus that for a high share of electric vehicles smart or controlled charging is essential in order to increase share of renewables and to avoid grid bottlenecks. Many concepts for smart charging are discussed. On-site solar optimized charging with uni- and bidirectional charging becomes popular more and more. But also restrictions and control signals from external operators need to be integrated into the EV supply equipment (EVSE). All control signals need to be transformed to the EV. All the control must work between various operators, cars, and charging stations and needs to be tested.

In the presentation we will motivate for smart charging control and discuss the needs for testing. This will lead us to the Hardware-in-the-Loop (HIL) test facility the Digital Grid Lab (digital-grid-lab.com) at the Fraunhofer-Institute for Solar Energy Systems ISE. Here the researches have realized a digital twin of an electric vehicle which emulates the real charging powers with the Power HIL setup. The emulated charging controller is connected to the EVSE by typical communication standards IEC61851 or ISO15118. With this the introduced digital twin is the basis to realize functionality smart charging tests of EVSE which we will be introduced in the presentation.

Bio: Dr.-Ing. Bernhard Wille-Hausmann, born in 1977, studied electronic engineering at the University of Stuttgart with focus on communication technologies. Since 2005 he works at Fraunhofer ISE in the

field of managing distribution grids with a high penetration of renewable and distributed generators and storages. In June 2011 he finished his PHD with the topic “Usage of the symbolic model reduction for analysing control strategies in Smart Grids”. Since 2010 he is head of the group Smart Grid Operation and Planning. Since 2021 he is deputy head of the Smart Grid department at Fraunhofer ISE. He is coordinating the work in the Digital Grid Lab (www.digital-grid-lab.de). He offers more than 15 years of experience in the field of smart grids.

2:45 – 3:05 pm Talk 3: 5G communications and computing for industrial control systems: Where we are and directions

Dr. Zhibo Pang, ABB

Abstract: Industrial applications, especially the use cases in time critical control systems, have been one of the main drivers of the 5G development and investment. The first version of 5G, R15 has been released for about 3 years, and commercial 5G products with eMBB profile have been available for about 2 years. Now it is time to reflect where we are. In this talk, I will introduce the findings from our systematic evaluation of 5G latency, reliability, compatibility to industrial networks, etc. from the system perspective. Then I will identify some directions that need more efforts from both industry and academia.

Bio: Zhibo Pang, PhD & MBA, is currently a Senior Principal Scientist at ABB Corporate Research Sweden, and Adjunct Professor at the University of Sydney and the Royal Institute of Technology (KTH). He is a Senior Member of IEEE and Co-Chair of the Technical Committee on Industrial Informatics. He is Associate Editor of IEEE TII, IEEE JBHI, and IEEE JESTIE. He was General Chair of IEEE ES2017 and General Co-Chair of IEEE WFCS2021 and Invited Speaker at the Gordon Research Conference AHI2018. He was awarded the “Inventor of the Year Award” by ABB Corporate Research Sweden, three times in 2016, 2018, and 2021 respectively. He works on enabling technologies in communication, computing, and intelligence for Industry4.0 and Healthcare4.0.

3:05 – 3:25 pm Talk 4: Emerging Technologies in industrial automation for enhancing digitalization and sustainability

Dr. Dietmar Bruckner, B&R Industrial Automation

Abstract: Manufacturers have to deal with a world that is changing faster every day: They have to produce more product variants in smaller batch sizes. The lifecycle of each product is getting shorter and shorter. Due to unpredictable demand and supply fluctuations, manufacturers must react to variations on very short notice. Last but not least, there is mass customization: the ability to make individualized products with the efficiency of mass production. These days, efficient usage of energy and material becomes even more key. In dealing with these challenges, several technologies are (finally) entering the manufacturing world: electromagnetic transportation systems (planar and track-based), synchronized machine vision, digital twins, and coherent industrial communication. This talk will showcase those technologies and their application to digitalized, adaptive manufacturing.

Bio: Dietmar Bruckner is with B&R Industrial Automation since 2013, where he is unit manager of Real-Time Systems and Connectivity in the R&D department Software. He is responsible for the development

of a wide range of Industrial Connectivity solutions based on (real-time) Ethernet, and of the real-time operating system Automation Runtime for PC and PLC platforms. Before B&R, he worked as a University Assistant (i.e., Assistant Professor) at the Institute of Computer Technology of the Vienna University of Technology, managing research teams in the areas of field busses, building automation, and artificial general intelligence.

He has both the MSc and PhD degrees in Electrical Engineering (with distinction). Dr. Bruckner is a Senior Member of IEEE, IEEE IES AdCom member, and OPC Foundation TAC member. He published over 75 reviewed scientific publications, and more than 100 scientific publications in total. He has five international patents and chaired the IEEE 61158 standard. He is actively involved in organizing international conferences, editing high ranked international journals (AE of TII, TIE, and IEM), and drafting international standards in the IEEE and OPC Foundation.

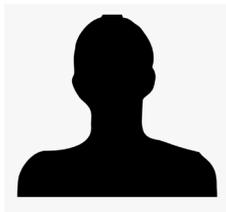
Session 3 European Innovation: Policies and Directions

2:00 – 3:30 pm CEST, Thursday, October 20, 2022

Chair: Dr. Stamatis Karnouskos, SAP

This interdisciplinary session is devoted to strategic European research and innovation and encompasses policies, strategic research roadmaps, and technology. The session aims at providing the participants with insights and food for thought pertaining to some aspects pertinent to the European Union's €95.5 billion (2021-2027) efforts for research and innovation funding. The specific speakers and their talks will be made available at a later point

Speakers



Name TBD

Title

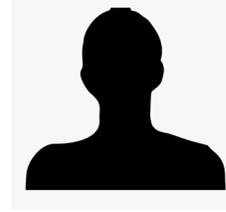
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2:00 – 2:05 pm

Opening Remarks

Dr. Stamatis Karnouskos, VP, Industry Activities, IES

Talks

2:05 – 2:30 pm

Talk 1: Title 1

Speaker 1

Abstract: Pending

Bio: Pending

2:30 – 2:55 pm

Talk 2: Title 2

Speaker 2

Abstract: Pending

Bio: Pending

2:55 – 3:20 Talk 3: Title 3

Speaker 3

Abstract: Pending

Bio: Pending

3:20 – 3:25 pm Closing Remarks

Dr. Stamatis Karnouskos, VP, Industry Activities, IES