Best Paper from the Twelfth ITU Kaleidoscope Academic Conference


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This special section presents an updated version of the paper that won the first prize award in the ITU (International Telecommunication Union) Kaleidoscope conference (K-2020).

This conference was the twelfth in the series, this time focusing on "Industry-driven digital transformation." The conference was technically co-sponsored by the Institute of Electrical and Electronics Engineers (IEEE) and the IEEE Communications Society (IEEE ComSoc). In addition, the IEEE Technology and Engineering Management Society (TEMS) also gave its support.

Initially, the plan was to hold the conference in parallel with the ITU Digital World, formerly known as ITU Telecom World, in Hanoi, Vietnam from 6 to 10 September 2020. The Covid-19 pandemic forced a change in plans, so the conference was held online later in the year, from 7 to 11 December 2020. To accommodate various time zones, the daily proceedings were limited to about four hours and the conference was stretched to five days instead of the original three. With all these changes, the 2020 Kaleidoscope was an opportunity to experiment with on-line conferencing and socializing. In particular, the ITU tool/platform, MyMeetings, provided a matchmaking function to give participants with similar interests the possibility of interacting online. Breakout rooms were arranged in the form of "virtual coffee breaks" for smaller group interactions. During these breaks, participants could move freely from one room to another. The Mystery Coffee tool (https://www.mysterycoffee.com) was also available for participants to partake in randomly arranged one-on-one virtual meetings. Each day, the ITU staff held a training session and remained available throughout to answer queries and provide assistance.

The on-line conferencing format allowed the participation of those who would not have afforded the cost of travel. In fact, there were about 150 participants connecting from 41 countries spread around the globe. Yet, the experience confirmed that online conferences cannot replace face-to face events, because the spontaneity and camaraderie of physical presence were sorely missed.

As described in the conference report (https://www.itu.int/en/ITU-T/academia/kaleidoscope/2020/Documents/Final%20Report/K-2020_Final-Report.pdf), the authors of the award-winning papers shared the prize fund of CHF 6 000.

The paper, "Network Control and Management Automation: Architecture Standardization Perspective," is an updated version of the winning paper presented at the conference. The latter was co-authored by Ved Kafle and AbuHena Al Muktadir under the title "Automation of Computational Resource Control of Cyber-physical Systems with Machine Learning." Ved P. Kafle is also the principal author of the revised paper with colleagues from the National Institute of Information and Communications Technology, Tokyo, Japan: Takahiro Hirayama, Takaya Miyazawa, Masahiro Jibiki and Hiroaki Harai. As requested at the conference, the revision covers the standardization of artificial intelligence (AI) and machine learning (ML) techniques currently in progress in several standards development organizations (SDOs) such as the ITU, the European Telecommunications Standards Institute (ETSI), and the 3rd Generation Partnership Project (3GPPP). A set of related open issues are also presented.

In conclusion, we would like to thank the reviewers listed below for their assistance.

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Biographies

Mostafa Hashem Sherif retired from AT&T in 2017. He has a Ph.D. from the University of California, Los Angeles, and an M.S. in the Management of Technology from Stevens Institute of Technology, New Jersey, and is a certified project manager from the Project Management Institute (PMI). He is the author of several books including *Protocols for Secure Electronic Commerce*, CRC Press, 3rd ed., 2016; *Paiements électroniques sécurisés*, Presses Polytechniques et Universitaires Romandes, 2006; and *Managing Projects in Telecommunication Services*, John Wiley and Sons, 2006. He is a Senior Member of the IEEE and an area editor for *Technovation* on "Technology management in industry."

Kai Jakobs joined RWTH Aachen University's Computer Science Department in 1985. He holds a Ph.D. in computer science from the University of Edinburgh and he is a Certified Standards Professional. His research interests focus on ICT standards and the underlying standardization process. Over time, he has (co)-authored/edited 30+ books and published 200+ papers. He is Vice President of the European Academy for Standardisation (EURAS) and founder of the *International Journal on Standardization Research*.

Christoph Dosch is a senior expert in terrestrial, cable and satellite broadcasting. He graduated from the Technical University Munich in 1976. In 2014, he retired as General Manager Collaborative Research with the IRT (www.irt.de) but has continued to work with this institute as liaison officer with the ITU up to the end of March 2021, and from 15 April 2021 onward with the Competence Centre International Frequency Management (CCFM) established by Public German Broadcasters ARD and Deutschland Radio. He is Vice Chairman of the ITU Study Group on broadcasting service and especially active in spectrum management, multimedia applications and access services for people with special needs.

Alessia Magliarditi is the ITU-T Academia Coordinator in the Telecommunication Standardization Policy Department of the ITU Telecommunication Standardization Bureau (TSB). She leads the TSB Academia team and coordinates various ITU academic initiatives, including the ITU Kaleidoscope academic conferences, the main ITU interface with universities and research institutions. She also acts as Manager of the *ITU Journal on Future and Evolving Technologies* (ITU J-FET) which provides complete coverage of all communications and networking paradigms, free of charge for both readers and authors. She holds an M.A in social sciences from the University La Sapienza of Rome, and an M.A. in International Relations and Diplomatic Studies from LUMSA University of Rome.

Yoshitoshi Murata received his M.E. from Nagoya University, Japan and his Ph.D. from Shizuoka University, Japan. From 1979 to 2006, he was with NTT and NTT DoCoMo, developing mobile communication systems, mobile terminals and services. He retired from Iwate Prefectural University in 2020. He was awarded the best paper of the ITU-T Innovations in NGN Kaleidoscope Academic Conference in 2008. His research interests include mobile communication, sensor networks, sensor databases, and integrated media communication.