

SELECTED PAPERS FROM THE NINTH ITU KALEIDOSCOPE ACADEMIC CONFERENCE



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The selections in this special section update presentations at the ninth International Telecommunication Union's (ITU) Kaleidoscope Academic Conference. The conference took place in Nanjing, Jiangsu Province, China from 27–29 November 2017, on the theme “Challenges for a Data-Driven Society.” Representatives from 26 countries participated in the event, which was technically co-sponsored by the IEEE and the IEEE Communication Society (IEEE ComSoc). The Conference Proceedings are available on the ITU website at <https://www.itu.int/en/publications/Documents/tsb/2017-ITU-Kaleidoscope/index.html>, and also from the IEEE Xplore Digital Library. Pictorial highlights from the conference are available at <https://www.flickr.com/photos/itupictures/sets/72157690471990724>.

The ITU Kaleidoscope series of academic conferences started in 2008 to provide a forum on developments in the information and communication technologies (ICT) that could be relevant to future standards. Participants include researchers, academics, students, engineers, policymakers, regulators, and futurists from universities, industry, and research institutions. The 2018 Kaleidoscope conference took place in Santa Fe, Argentina, from 26 to 28 November, with the theme “Machine Learning for a 5G Future,” and selected papers from that conference are scheduled to be published in the September 2019 issue of this magazine.

The first article, “A Holistic Approach to Exploring the Divided Standards Landscape in e-health Research,” is an updated version of the entry that won the best paper award at Kaleidoscope 2017. Its authors are Doyoung Eom and Heejin Lee from Yonsei University, Korea. The article presents a synthetic view of e-health standards, organized around three themes: use and harmonization, types and roles, and adoption. A major contribution is the identification of the gaps in current standards that prevent the seamless interoperability of e-health records at the international level.

The title of the second article is “The IEEE 1906.1 Standard: Some Guidelines for Strengthening Future Normalization in Electronic Magnetic Nano-Communications,” by

Sebastian Canovas-Carrasco, Antonio-Javier Garcia-Sanchez, and Joan Garcia-Har from the Universidad Politécnica de Cartagena, Spain. IEEE 1906.1 is a conceptual standard intended as a starting point for future developments in nanoscale communications. Based on the latest version of IEEE 1906.1, the authors provide recommendations on what needs to be considered to enhance electromagnetic and molecular nanoscale communications.

The final selection is from the National Institute of Information and Communications Technology, Japan. The title is “Adaptive Virtual Network Slices for Diverse IoT Services,” and it is authored by Ved Kafle, Yusuke Fukushima, Pedro Martinez-Julia, Takaya Miyazawa, and Hiroaki Harai. This contribution describes how virtualized resources can be dynamically allocated to network slices to ensure that each slice meets the quality of service (QoS) requirements of a given category of Internet of Things (IoT) services. The authors present preliminary results for the on-demand allocation and dynamic adjustment of resources in scalable virtualized network systems. In particular, they consider three types of scalability: horizontal scaling by adjusting the number of virtualized network nodes and servers; vertical scaling by adjusting the virtualized resources allocated to a network function; and internetwork scaling by the arbitration of limited resources among many network slices. Final results from the research will be submitted to standards development organizations such as the ITU and the Internet Engineering Task Force (IETF).

In closing, the Editors would like to express their gratitude to the reviewers, listed below in alphabetical order, for their assistance in making the selections and for their generous advice to the authors of the various submissions.

Reviewer	Affiliation
Abu Ali, Najah	United Arab Emirates University, UAE
Adolph, Martin	International Telecommunication Union, Switzerland
Akçayır, Murat	Kirikkale Universitesi, Turkey
Alomainy, Akram	Queen Mary University London, UK

Bush, Stephen	GE Global Research, Niskayuna, New York, USA
Chopra, Nishtha	Public Health England Centre for Radiation Chemical and Environmental Hazards, Chilton, Didcot, UK
Dedu, Eugen	Université Bourgogne Franche-Comté, France
Egyedi, Tineke	Diros, The Netherlands
Jakobs, Kai	RWTH Aachen U., Germany
Karim, Rehan	AT&T Labs, Middletown, New Jersey, USA
Kluge, Eike-Henner	University of Victoria, British Columbia, Canada
Li, Ping	Southwest Petroleum University, Chengdu, China
Lomotey, Richard	Pennsylvania State University, USA
McClay, James	University of Nebraska Medical Center, Nebraska, USA
Misut, Martin	Ekonomicka Univerzita v Bratislave Slovenskej, Slovakia
Pereira Esteves, Rafael	IFRS (Instituto Federal Rio Grande do Sul), Brazil
Rao, Praveen	University of Missouri-Kansas City, Missouri, USA
Simsek, Mehmet	Duzce Universitesi, Turkey
Vezzetti, Enrico	Politecnico di Torino, Italy
Yang, Ke	Queen Mary University London, UK
Zhang, Di	Tsinghua University, Beijing, China

BIOGRAPHIES

MOSTAFA HASHEM SHERIF (hashem_sherif@icloud.com) retired from AT&T in 2017. He has a Ph.D. from the University of California, Los Angeles, and a M.S. in the Management of Technology from Stevens Institute of Technology, N.J., and is a

certified project manager from the Project Management Institute (PMI). Among the books he authored are: *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.

KAI JAKOBS joined RWTH Aachen University's Computer Science Department in 1985. He holds a PhD in Computer Science from the University of Edinburgh and is a Certified Standards Professional. His research interests focus on ICT standards and the underlying standardisation process. Over time, he has (co)-authored/edited 20+ books and published 200+ papers. Kai is Vice President of the European Academy for Standardisation (EURAS) and founder/editor-in-chief 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 working with this institute as liaison officer to the ITU. 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 a Programme 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 Executive Editor-in-Chief of the scholarly, professional, digital ITU Journal: *ICT Discoveries*, which publishes original research on telecommunication/ICT technical developments and their policy and regulatory, economic, social and legal dimensions. Alessia 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.

STEFANO POLIDORI is an Advisor at the International Telecommunication Union and responsible for the technical secretariat of ITU-T Study Group 9 "Broadband cable and TV". He is also responsible for the Intelligent Transport Systems (ITS) activities, including the Symposium on the Future Networked Car at the Geneva Motor Show. He is the ITU representative to the European Multi Stakeholder Platform on ICT Standardization at the European Commission. After few years in the private sector, he joined the ITU in 2004. Stefano holds a Master in Electronic Engineering from the University of Rome, Italy and a Master of Science in mobile communication from Aalborg University, Denmark.