

Message from the Editor-in-Chief

Dynamic Spectrum Management (Wireless Communications)

The excellent quality of this periodical, to a large extent, is due to the selection of timely topics for our Special Issue (SIs) and Feature Topics (FTs). So far this year, we have had a number of very exciting issues; some of which covered important topics relating to fifth generation (5G) cellular systems. For example, to tackle some of the challenges facing design architecture, the February issue was dedicated to addressing the scalability, flexibility, and interoperability of future wireless networks. Thanks to the guest editors: Kejie Lu, Shucheng Liu, and Kostas Pentikousis, the issue contains 12 excellent articles that were selected from a field of 60 submissions.

“IoT: Protocol Stack, Cross-Layer, and Power Consumption” is the title of our June special issue which focuses on recent research advancements in the Internet of Things (IoT). As the need for smart radio technologies and low powered communication grows, this special issue contains a collection of papers touching upon various advances in IoT, such as cognitive radio, network architectures, narrow-band IoT, RFID, sensor selections, and intelligent vehicles. Another set of challenges facing the design and deployment of the 5G system is the development of green and sustainable networking and computing protocols, which was the main topic of our August issue. This FT contains a number of high quality papers covering recent technical advances in energy efficiency and sustainability in 5G communication and networking systems.

As we depend heavily on special issue (IS) and feature topic (FT) papers, I am very pleased to dedicate this issue to the topic of dynamic spectrum management. Bearing in mind that with the explosive acceleration of mobile data against a backdrop of finite spectrum resources, spectrum management continues to be the most critical problem facing wireless communications. There has been a tremendous effort for optimal use of spectrum by exploiting innovative technologies that can offer opportunities for new generations of dynamic spectrum management. The challenges in providing efficient spectrum management are numerous and this special issue contains several important papers that address some of these challenges. While acknowledging its limited coverage, the issue offers a range of interesting contributions, such as cognitive radio, spectrum access, spectrum sharing and cooperation, Heterogeneous Networks (HetNets), and advanced receiver design.

Keeping with our tradition, we include additional high quality open-call papers in this edition. The first open-call paper is entitled; “Control/User Plane Decoupled Architecture Utilizing Unlicensed Bands in LTE Systems” by Song et. al. The authors present a network architecture for Long-Term Evolution (LTE) in unlicensed spectrum (LTE-U) systems in order to facilitate effective utilization of unlicensed spectra. They propose a control/user plane (C/U) decoupled system architecture for LTE-U systems that offers lower complexity, higher flexibility, higher reliability, and higher system capacity. The title of the second open call paper is “Efficient Energy Transport in 60 GHz for Wireless Industrial Sensor Networks” by H. Li et al. In this paper, the authors investigate the efficiency of RF energy transport in Wireless Industrial Sensor Networks (WISNs) in 60 GHz. They propose the deployment of horn antennas for both wireless communication and energy

transport in 60 GHz. A spherical antenna model is introduced for covering sensors that are distributed over a sphere in a WISN. The final open call paper in our collection is mainly concerned with mobile cyber-physical systems (M-CPSs) dealing with issues related to information exchange among M-CPS's entities. The paper by K. Navaie and H. Aghvami, is entitled "Dependable Information Exchange for the Next Generation Mobile Cyber-Physical Systems", proposes a cloud-based architecture for dependable-exchange-of-information (DeX) provisioning-as-a-service to facilitate versatile development of Dependable M-CPSs.

I hope that readers will enjoy the collection of papers presented in this issue. With the help of experts in our wireless community, we will continue to provide timely and visionary special issues and feature topics on wireless communications. I would like to use this opportunity to thank all of our guest editors for their leadership roles in new and emerging fields, particularly in the most strategically important topics in wireless communications. I am also very grateful to our regular editors who dedicate their time to ensuring the highest quality publications. I would like to express my gratitude to the authors for their valuable contributions, and to our reviewers for their efforts in providing timely feedback to the authors. My sincere thanks go to our managing editor; Peggy Kang, for her valuable administrative assistance in helping the authors and Guest Editors.

BIOGRAPHY



HAMID GHARAVI received his Ph.D. degree from Loughborough University, United Kingdom, in 1980. He joined the Visual Communication Research Department at AT&T Bell Laboratories, Holmdel, New Jersey, in 1982. He was then transferred to Bell Communications Research (Bellcore) after the AT&T-Bell divestiture, where he became a consultant on video technology and a Distinguished Member of Research Staff. In 1993, he joined Loughborough University as a professor and chair of communication engineering. Since September 1998, he has been with the National Institute of Standards and Technology (NIST), U.S. Department of Commerce, Gaithersburg, Maryland. His research interests include smart grid, wireless multimedia, mobile communications and wireless systems, mobile ad hoc networks, bandwidth compression, and visual communications. He holds eight U.S. patents and has over 100 publications related to these topics. He received the Charles Babbage Premium Award from the Institute of Electronics and Radio Engineering in 1986, and the IEEE CAS Society Darlington Best Paper Award in 1989. He was the recipient of the Washington Academy of Science (WAS) Distinguished Career in Science Award for 2017. He served as a Distinguished Lecturer of the IEEE Communication Society. In 1992 he was elected a Fellow of IEEE for his contributions to low-bit-rate video coding and research in subband coding for video applications. He is also a fellow of the Washington Academy of Science. He served as a member of the Editorial Board of *Proceedings of the IEEE* from January 2003 to December 2008. From January 2010 to December 2013 he served as Editor-in-Chief (EiC) of IEEE Transactions on CAS for Video Technology. He is an editor of the IEEE Transactions on Smart Grid and the current EiC of the IEEE Wireless Communications.