GREEN COMMUNICATIONS AND COMPUTING NETWORKS

Jinsong Wu   John Thompson   Honggang Zhang   RangaRao Venkatesha Prasad   Song Guo

From September 6 to September 8, 2000, United Nations Millennium gathered 149 heads of state and government and high-ranking officials from more than 40 countries, which unanimously accepted the United Nations Millennium Declaration with a statement of values, principles, and objectives for the international agenda for the 21st century. The United Nations Millennium Declaration called on their nations for a global partnership to reduce extreme poverty, halt the spread of HIV/AIDS, and offer universal primary education with a deadline of 2015. In 2005, an independent advisory committee led by Professor Jeffrey Sachs provided the final recommendations to the United Nations Secretary-General about plans to achieve eight Millennium Development Goals (MDGs), which included:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria, and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

Since the majority of the MDGs came to the stage of conclusions at the end of 2015, the United Nations General Assembly made the broad intergovernmental agreement that acts as the Post-2015 Development Agenda, the bold and transformative 2030 Agenda for Sustainable Development, for which Paragraph 54 of United Nations General Assembly Resolution A/RES/70/1 includes 17 Sustainable Development Goals (SDGs) and 169 relevant targets. Different from the MDGs, the SDGs are set for all countries instead of distinguishing between "developed" and "developing" nations. Recently, considering the global importance of achieving SDGs in the foreseeable future, the relevance of SDGs to information and communication technologies have been panoramically discussed, analyzed, and envisioned.

To support global environmental sustainability, the IEEE Environmental Engineering Initiative (IEEE EEI) launched a flagship conference, the IEEE International Environmental Engineering Conference, with the first edition located in Milan, Italy, in March 2018, which allowed topics relevant to interactions of various IEEE fields to interact with the scientific and professional communities in other technical areas of environmental engineering, such as civil engineering, environmental sciences, earth/soil science, astronomy/space science, hydraulic engineering, chemistry, chemical engineering, physics, biology, medicine, ecology, climate science, management, economics, social sciences, and more. In the 2018 IEEE International Environmental Engineering Conference, besides the Regular Track, a number of relevant experts organized several Special Tracks: Special Track on Communications and Computing for Sustainable Development Goals, Special Track on Machine Learning for Environmental Modelling, Special Track on Radar Systems for Safe & Secure Environments, Special Track on Stochastic Modelling of Electromagnetic Environments, and Special Track on Wireless Sensor Networks and Remote Sensing for Environmental Applications.

As continual green efforts, this issue of the IEEE Series on Green Communications and Computing Networks includes the relevant articles.

The article "Green-Oriented Traffic Offloading through Dual Connectivity in Future Heterogeneous Small Cell Networks" overviews the green-oriented traffic offloading in future heterogeneous cellular networks (HCNs) with the recent advanced energy technologies including energy harvesting (EH), local energy sharing (ES), and wireless power transfer (WPT), and illustrates the possible solutions, especially by using the emerging dual connectivity (DC) in the recent Third Generation Partnership Project (3GPP) specification.

The article "Green Machine-to-Machine Communications with Mobile Edge Computing and Wireless Network Virtualization" introduces mobile edge computing (MEC) into virtualized cellular networks with M2M communications, to decrease energy consumption and optimize computing resource allocation.

The article "Energy Management for EV Charging in Software-Defined Green Vehicle-to-Grid Networks" considers a software-defined green V2G network for energy management, which consists of three planes: management plane, control plane, and data plane.

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BIOGRAPHIES

JINSONG WU [SM] (wujs@ieee.org)e is the elected Vice-Chair of Technical Activities, IEEE Environmental Engineering Initiative (EEI), a pan-IEEE effort under the IEEE Technical Activities Board (TAB). He is founder and founding Chair of the IEEE Technical Committee on Green Communications and Computing. One of his papers was selected for the 2017 *IEEE Systems Journal* Best Paper Award. He was the leading Editor and co-author of the comprehensive book *Green Communications: Theoretical Fundamentals, Algorithms, and Applications* (CRC Press, 2012).

JOHN THOMPSON [F] (john.thompson@ed.ac.uk) currently holds a personal chair in Signal Processing and Communications, University of Edinburgh, United Kingdom. He was deputy academic coordinator for the Mobile Virtual Centre of Excellence Green Radio project, and now leads the U.K. SERAN project which studies spectrum issues for 5G wireless, and leads the European Marie Curie Training Network ADVANTAGE, which trains 13 Ph.D. students in smart grid technology. He was also a Distinguished Lecturer on green topics for ComSoc in 2014–2015.

HONGGANG ZHANG [SM] (honggangzhang@zju.edu.cn) is a professor at Zhejiang University, China, and was International Chair Professor of Excellence for UEB and Supélec, France (2012–2014). He was Chair, IEEE Technical Committee on Cognitive Networks (2011–2012). He was Lead Guest Editor of *IEEE Communications Magazine* Feature Topics on Green Communications. He was General Co-Chair of 2010 IEEE GreenCom and Co-Chair of IEEE Online GreenComm 2015. He is a co-editor/co-author of *Green Communications: Theoretical Fundamentals, Algorithms, and Applications* (CRC Press).

RANGARAO VENKATESHA PRASAD [SM] (R.R.VenkateshaPrasad@tudelft.nl) received his Ph.D. from IISc, Bangalore, India, where he designed a scalable VoIP conferencing platform. Part of his thesis led to a startup venture, Esqube Communication Solutions. In 2005, he joined TUDelft. He worked on personal networks (PNs), IoT, CPS, and energy harvesting networks. The work at TUDelft resulted in 180+ publications. He is also a Senior Member of ACM.

SONG GUO [SM] (song.guo@polyu.edu.hk) is a full professor at the Department of Computing, Hong Kong Polytechnic University. He has published over 300 papers in refereed journals/conferences and received multiple IEEE/ACM best paper awards. He is an Editor of *IEEE Transactions on Green Communications and Networking* and the Secretary of the IEEE Technical Subcommittee on Big Data. He is a Senior Member of the ACM and an IEEE Communications Society Distinguished Lecturer.