Editorial for Chinacom2012 Special Issue

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Editorial:

This special issue focuses on the most recent advances in the frontier research of wireless communications and networking, and features five high quality papers selected from the conference CHINACOM2012 and open call. CHINACOM2012 is the 7th International Conference on Communications and Networking in China, which was held successfully in Kunming, China, in August 8–10, 2012. The conference has received 416 submissions from 15 countries and is composed of eight technical symposiums, five workshops and two popular tutorials. High quality papers were selected from the proceeding of CHINACOM2012, extended to a journal version and peer-reviewed. Submissions were also received from open call. Five featured outstanding papers are accepted for the publication in this special issue, covering various cutting-edge new techniques in wireless communications and networking, including beamforming, traffic classification, energy saving, routing and realization.

The first paper "Robust Filter-and-Forward Beamforming Design for Two-Way Multi-Antenna Relaying Networks" by Zesong Fei, Niwei Wang, Chengwen Xing, Shuo Li, Jiqing Ni and Jingming Kuang investigates a system with multiple two-way relays assisting two terminals to exchange information. A robust filter-and-forward beamforming design is proposed for multi-antenna relays. Aiming at maximizing the signal-to-interference-plus-noise-ratio (SINR), the design problem can be solved by convex optimization tools.

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Simulation results show that the proposed scheme is less sensitive to the channel estimation errors.

The second paper "FFT Traffic Classification-Based Dynamic Selected IP Traffic Offload Mechanism for LTE HeNB Networks" by Xue Han, Lin Han, Yiqing Zhou, Liang Huang, Manli Qian, Jinlong Hu and Jinglin Shi focuses on the traffic offloading in long term evolution (LTE) networks. A dynamic Selected IP Traffic Offload scheme is proposed, which combines the Fast Fourier Transform (FFT) based IP traffic classification scheme with the dynamic traffic offload path selection algorithm. The proposed scheme is shown to be able to realize on-line traffic classification with similar precisions using only less than 10 % of the time required by existing schemes.

The third paper "Lifetime Optimization by Load-Balanced and Energy Efficient Tree in Wireless Sensor Networks" by Junhong Ye, Kai Peng, Chonggang Wang, Yake Wang, Liang Zhang, Xiaoqiang Ma and Hongbo Jiang focuses on energy efficient data gathering in wireless sensor networks. A Load-Balanced and energy efficient Tree algorithm is proposed to maximize the lifetime of sensor nodes. The upper bound of network lifetime is presented for data gathering without aggregation with tree-based topology. Simulations demonstrate that the proposed algorithm utilizes up to 98 % of the total energy and provides longer network lifetime than existing methods.

The next paper "A Beacon-less Geographic Multipath Routing Protocol for Ad Hoc Networks" by Ping Dong, Huanyan Qian, Xiaofei Wei, Shaohua Lan and Cunlai Pu presents a multipath routing protocol to construct maximally node-disjoint multiple paths. The proposed protocol utilizes location information to discover multiple paths, thus avoids lot of control messages caused by route discovery and maintenance in the topology based protocols. Simulation results show that the proposed protocol improves the efficiency of the path discovery, reduces the control overhead and provides relatively short end-to-end delay.

The last paper "Design Cooperative Awareness Nodes Using SOPC in Smart Multimedia Sensor Networks" by Yi Zhou, Huiping Li, Chunlin Wan and Yandong Hou focuses on the design of the smart cooperative multimedia sensor node based on system on programmable chip (SOPC). Aiming at

improving the on-board processing capability and the degree of freedom in development, a structure and a design method are proposed for the sensor node and the on-board feature extraction is realized. Experimental results verify the feasibility and efficiency of the proposed scheme.

The guest editors are thankful to the reviewers for their efforts in reviewing the manuscripts. We also thank the Edit-in-Chief, Dr. Imrich Chlamtac for his supportive guidance during the entire process.
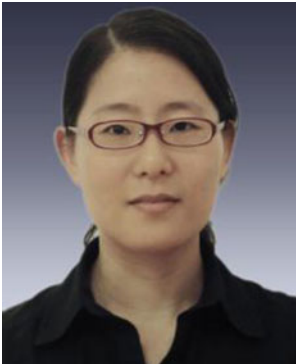
Yiqing Zhou (S'03–M'05–SM'10) received the B.S. degree in communication and information engineering and the M.S. degree in signal and information processing from the Southeast University, China, in 1997 and 2000, respectively. In February 2004, she received the Ph.D. degree in electrical and electronic engineering from the University of Hong Kong, Hong Kong. Now she is a professor in Wireless Communication Research Center, Institute of Computing Technology, Chinese Academy of Sciences. Dr. Zhou has published over 60 papers and one book chapter in the areas of wireless mobile communications. Dr. Zhou is a senior member of IEEE and the associate/guest editor for IEEE Trans. Vehicular Technology, IEEE JSAC (Special issue on "Broadband Wireless Communication for High Speed Vehicles" and "Virtual MIMO"), WCMC, ETT and JCST. She is also the TPC co-chair of ChinaCom2012, symposium co-chair of IEEE ICC2014, tutorial co-chair of WCNC2013 and the workshop co-chair of SmartGridComm2012 and GlobeCom2011. Dr. Zhou has served many international conferences as a TPC member, including IEEE ICC, GlobeCom, WCNC and VTC.

Yonghui Li (M'04) received the Ph.D. degree in electronic engineering from the Beijing University of Aeronautics and Astronautics, Beijing, China, in November 2002. From 1999 to 2003, he was with Linkair Communication Inc., where he was a Project Manager responsible for the design of physical-layer solutions for the Large Area Synchronized Code Division Multiple Access system. Since 2003, he has been with the Telecommunication Lab, University of Sydney, Sydney, Australia. He is currently associate professor with the School of Electrical and Information Engineering, University of Sydney. He was an Australian ARC Queen Elizabeth II Fellow and currently an ARC Future Fellow. His current research interests are in the area of wireless communications, with a particular focus on multiple-input–multiple-output, cooperative communications, coding

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