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SPECIAL ISSUE ON

Reliable Communication for Emerging Wireless Networks

Overview:

As many as 50 billion devices will be connected to the Internet by 2020. It is predicted that the number of mobile-connected devices will exceed 11.5 billion by 2019 (nearly 1.5 mobile devices per capita), which poses a huge traffic demand for ubiquitous communications. Data rates are projected to increase by a factor of ten every five years, and with the emerging Internet of Things (IoT) predicted to wirelessly connect trillions of devices across the globe. It is anticipated that we will witness an up to 10000- fold growth in wireless data traffic by the year 2030. Predictions evidently indicates that the growth in data traffic will cater unprecedented services and applications for machine type communication such as driverless vehicles and drone-based deliveries, smart cities and factories, remote medical diagnosis and surgery, and artificial intelligence- based personalized assistants along with traditional human-centric communications . Coexistence of human-centric and machine-type services as well as hybrids of these will make next generation wireless networks more diverse and complex. Current wireless radio access techniques are not capable of delivering these new applications and services as they are way different from traditional human-centric communications in terms of reliability, latency, energy efficiency, security, flexibility, and connection density. Without novel approaches, future wireless mobile networks (5G and beyond) will grind to a halt unless more capacity is created, on the other hand, to cope with the challenges due to new service categories, a new look on the wireless networks is required to meet performance requirements such as massive connectivity, lower latency, higher reliability, better energy efficiency and security.

To overcome the aforementioned challenges of emerging wireless communications and networks for 5G and Beyond, this special issue focuses on (but are not restricted to) the following topics.

Topics

Topics of interest include, but are not limited to, the following scope:

<ul style="list-style-type: none">- Ultra-reliable and low latency communication (URLLC)- Massive machine-type communication (mMTC)- New air interface design for 5G (New Radio (NR))- QoS/QoE mechanisms for wireless communications and networks- 5G wireless heterogeneous networks: design and optimization- Sensing technologies and applications for 5G	<ul style="list-style-type: none">- Integration and co-existence of 5G wireless communication and network technologies- Energy efficiency (harvesting and saving) wireless protocols and algorithms for 5G- Security and privacy concerns in 5G wireless communications- NOMA, full-duplex, massive MIMO- Green 5G multimedia wireless networks- AI techniques for Wireless
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<ul style="list-style-type: none"> - 5G wireless communications and networks for surveillance and management - 5G Cognitive networks and IoT - Experimental results, prototypes, and testbeds of 5G wireless communications and networks 	<p>Communication and security</p> <ul style="list-style-type: none"> - mmWave Massive MIMO - Hardware impairments affecting wireless communications
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Important Dates

- **Manuscript submission deadline:** 31st December 2018
- Notification of acceptance: 1st March 2019
- Submission of final revised paper: 1st May 2019
- Publication of special issue (tentative): August 2019

Submission Procedure

This MONET Half Special Issue will publish six selected high-quality extended papers from 14th EAI International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (**QShine 2018**) <http://www.qshine.org> and from the open call-for-papers. Authors should follow the MONET Journal manuscript format described at the journal site. Manuscripts should be submitted on-line through <http://www.editorialmanager.com/mone/>.

A copy of the manuscript should also be emailed to the Guest Editors at the following email address(es) trung.q.duong@gmail.com, chinmoy.kundu@gmail.com, antonino.masaracchia@gmail.com, and dinhbachkhoa07@gmail.com

Guest Editors:

Dr. Trung Q. Duong, Queen's University Belfast, UK

Dr. Chinmoy Kundu, University of Texas at Dallas, USA

Dr. Antonino Masaracchia, University of Palermo, Italy

Dr. Van-Dinh Nguyen, Soongsil University, Korea

Trung Q. Duong received his Ph.D. degree in Telecommunications Systems from Blekinge Institute of Technology (BTH), Sweden in 2012. Since 2013, he has joined Queen's University Belfast, UK as an Assistant Professor. His current research interests include cooperative communications, cognitive radio networks, physical layer security, massive MIMO, cross-layer design, mm-waves communications, and localization for radios and networks. He is an author/co-author of more than 300 technical papers (including 175 ISI journals and 128 conference papers). Dr. Duong is currently serving as an Editor for the following journals: *IEEE Trans on Wireless Communications*, *IEEE Trans on Communications*, *IEEE Communications Letters*, *IET Communications*. He has also served as the Guest Editor of the special issue (SI) for the following journals: Lead Guest Editor of the *IEEE Journal in Selected Areas on Communications* (JSAC) for the SI on “Location Awareness for Radios and Network” in 2015; Lead Guest Editor of the *IET Communications* for the SI on “Secure Physical Layer Communications” in 2013 and on “Green Telecommunications Systems and Computing” in 2016; Guest Editor of the *IEEE Wireless Communications Magazine* for the SI on “Green Media: The Future of Wireless Multimedia Networks” in 2014; Guest Editor of the *IEEE Communications Magazine* for the SI on “Millimeter Wave Communications for 5G” in 2014 and “Energy Harvesting Communications” in 2015; Guest Editor of the *IEEE Access* for the SI on “Security for Wireless Communications and Networking” in 2016 and on “Exploiting the Benefits of Interference in Wireless Networks: Energy Harvesting and Security” in 2017; Guest Editor of the *EURASIP Journal on Wireless Communications and Networking* for the SI on “Cooperative Cognitive Networks” in 2013; Guest Editor of the *EURASIP Journal on Advances Signal Processing* for the SI on “Security Challenges and Issues in Cognitive Radio Networks” in 2014; Editor for *Wiley Transactions on Emerging Telecommunications Technologies* (2013-2016) and *Electronics Letters* (2015-2016). He was awarded the Best Paper Award at the IEEE Vehicular Technology Conference (VTC-Spring) in 2013, IEEE International Conference on Communications (ICC) 2014, and IEEE Global Communications Conference (GLOBECOM) 2016.

Chinmoy Kundu received the B.Tech. and M.Tech. degrees in communication engineering in 2007 and 2010, respectively, and the Ph.D. degree in electrical communication engineering from the Bharti School of Telecommunication Technology and Management, IIT Delhi, in 2015. From 2007 to 2008, he was with IBM India Pvt. Ltd., as an Associate System Engineer. From 2008 to 2010, he was with the Central Mechanical Engineering Research Institute, Durgapur, India, as a Junior Research Fellow. From 2015 to 2016, he was a Post-Doctoral Fellow in Memorial University, NL, Canada. He has been a Visiting Research Fellow with the School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, U.K., since 2016. His

current research interests are physical layer security, optimization, and cooperative communication. He has served as a reviewer and member of Technical Program Committees for several IEEE journals and conferences in communications. He was a recipient of the Newton International Fellowship from the Royal Society, U.K., in 2016, the INSPIRE Faculty Award from the Department of Science and Technology, Government of India, in 2016, and the Junior Research Fellowship from the Council of Scientific and Industrial Research, Government of India, in 2008. He has published in total 16 journals and 18 conferences many of them were published in reputable journals and conferences like IEEE Transactions on Wireless Communications, IEEE Wireless Communications Letters, IEEE Communications Letters, IET Communications, IEEE Global Communications Conference etc. He has been awarded the Best Paper Award at SigTelCom 2018. He has served as TPC members of many reputable IEEE conferences, session chair at IEEE GLOBECOM and workshop chair at INSICOM-18.

Antonino Masaracchia received the M.Sc. degree in Telecommunication Engineering (magna cum Laude) from the University of Palermo in 2012. In 2013 he started his Ph.D. studies at the University of Palermo in joint supervision with the Institute of Informatics and Telematics (IIT) of the National Research Council (CNR) of Pisa. His research activities were related to the design and validation of a new network architecture able to perform data traffic offloading from the 4G/LTE cellular networks to another complementary network, e.g. Wi-Fi or Bluetooth, by exploiting device-to device (D2D) communication according to the opportunistic networking paradigm. Furthermore, he analyzed mathematically and through numeric simulations the performance and limits of some LTE subsystems through a cross-layer approach considering key aspects of the PHY and MAC layers of the LTE standard. All results obtained from his research activities have been important contributions from IIT-CNR to the FP7-MOTO European Project, which has been considered by the European Commission as one of the precursor projects for the development 5G technologies inside the 5G-PPP Programme. On March 2016 he obtained his Ph.D. in Electronics and Telecommunication Engineering from the University of Palermo. From November 2016 to June 2017, he was Post-Doctoral Fellow at the Department of Information Engineering of Pisa. During this period, he conducted activities related to the European Project Umi-Sci-Ed, developing educational scenarios based on Ubiquitous Computing, Mobile Computing and IoT for promoting STEM education. In addition, he conducted research activities related on SDN, NFV and IoT. From July 2017 to August 2018, he was Post-Doctoral Fellow at the BioRobotics Institute of Sant'Anna School of Advanced Studies, conducting research activities related to the European Project Endoo in the vision of Industry 4.0. He has served as a reviewer for some IEEE and Springer journals and conferences on communication Networks. He has published in total 1 journal and 4 conference some of them published in reputable journal and conferences like, Annals of Biomedical Engineering, IEEE Vehicular Technology Conference (VTC), IEEE International Conference on Mobile Ad hoc and Sensor Systems (IEEE- MASS)

and IEEE World Of Wireless, Mobile and Multimedia networks (IEEE WoWMoM).

Van-Dinh Nguyen received the B.E. degree in electrical engineering from Ho Chi Minh City University of Technology, Ho Chi Minh City, Vietnam, in 2012 and the M.E. and Ph.D. degrees in electronic engineering from Soongsil University, Seoul, South Korea, in 2015 and 2018, respectively. He is currently a postdoc researcher with the School of Electronic Engineering, Soongsil University. From 2012 to 2013, he spent 12 months with Vietnam Television as a principal engineer. He was PhD Visiting Scholar at Queen's University Belfast (U.K.) from June-July 2015 and August 2016. His current research interests include machine learning for wireless communications, UAV/drones communications, cyber-physical security, full-duplex radios and cognitive radio networks. Dr. Nguyen received several best conference paper awards, IEEE Transaction on Communications Exemplary Reviewer 2018 and IEEE GLOBECOM Student Travel Grant Award 2017. He has authored or co-authored in some 30 papers published in international journals and conference proceedings. He has served as a reviewer for many top-tier international journals on wireless communications, and has also been a Technical Programme Committee Member for several flag-ship international conferences in the related fields.



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