The 10th International Conference on Wireless Algorithms, Systems, and Applications (WASA 2015)
Qufu, Shandong, China
August 10-12, 2015

Program

7:30AM – 8:30AM August 10, 2015 Registration
8:30AM – 8:40AM August 10, 2015 Opening Remarks
8:40AM – 9:40AM August 10, 2015 Keynote I: Code Hopping Multiple Access Based on Orthogonal Complementary Codes Professor Hsiao-Hwa Chen, National Cheng Kung University Session Chair: Xiuzhen Cheng (George Washington University)
9:50AM – 10:50AM August 10, 2015 Keynote II: Green Multi-Homing Video Transmission in Wireless Heterogeneous Networks Professor Weihua Zhuang, University of Waterloo Session Chair: Haojin Zhu (Shanghai Jiao Tong University)
11:00AM – 12:00PM August 10, 2015 Keynote III: D2D: Research Trend and Future Perspective Professor Nei Kato, Tohoku University Session Chair: Yingshu Li (Georgia State University)

2:00PM – 3:30PM August 10, 2015 Session 1: Wireless Sensor Networks – I Session Chair: Longjiang Guo (Heilongjiang University) #21: Xuming Yin, Jinghua Zhu, Yingshu Li and Zhiqiang Wu Mobile Data Gathering with Time-Constraints in Wireless Sensor Networks #13: Tongxin Zhu, Xinrui Wang, Siyao Cheng, Jianzhong Li and Zhipeng Cai Critical Point Aware Data Acquisition Algorithm in Sensor Networks #6: Liu Zheng, Yang Xinyu, Zhao Peng and Yu Wei Energy-balanced Backpressure Routing for Stochastic Energy Harvesting WSNs #33: Lixin Wang, C. P. Abubucker, William Washington and Katrina Gilmore Minimum-Latency Broadcast and Data Aggregation Scheduling in Secure Wireless Sensor Networks #56: Luqun Li A Dynamic Differentiated QoS Based Call Admission Control Service Model for Core Node in Wireless Sensor Network Topology Control	2:00PM – 3:30PM August 10, 2015 Session 2: Security - I Session Chair: Yingjie Wang (Yantai University) #46: Luke Zhang, Li Wang and Xiaojiang Du Secrecy-oriented Adaptive Clustering Scheme in Device-to-Device Communications #15: Yinbin Miao, Jiajia Liu and Jianfeng Ma Fine-Grained Searchable Encryption over Encrypted Data in Multi-clouds #32: Feng Chen, Hong Zhou, Yuchuan Luo and Yingwen Chen Privacy-Preserving Public Auditing together with Efficient User Revocation in the Mobile Environments #34: Zehao Sun, Shaojie Tang, He Huang, Liusheng Huang, Zhenyu Zhu, Hansong Guo and Yu-E Sun iProtect: Detecting Physical Assault using Smartphone #70: Chao Qun Yang, Heng Zhang, Fengzhong Qu and Zhiguo Shi Performance of Target Tracking in Radar Network System under Deception Attack
4:00PM – 5:30PM August 10, 2015 Session 3: VANET Session Chair: Jinghua Zhu (Heilongjiang University) #42: Yan Huo, Yuejia Liu, Xiaoshuang Xing, Liran Ma, Xiuzhen Cheng and Tao Jing A Low Overhead and Stable Clustering Scheme for Crossroads in VANETs #99: Hao Qu, Longjiang Guo, Weiping Zhang, Jinbao Li and Meirui Ren Rogue Access Point Detection in Vehicular Environments #44: Xia Feng, Chunyan Li, Dexin Chen and Jin Tang EBRS: Event Based Reputation System for Defensing Multi-source Sybil Aattacks in VANET #119: Ming Zhu, Jiannong Cao, Deming Pang, Zongjian He and Ming Xu SDN-based Routing for Efficient Message Propagation in VANET #127: Yipin Sun, Shuhui Chen, Biao Han, Bofeng Zhang and Jinshu Su A Novel Location Privacy Mining Threat in Vehicular Internet Access Service	4:00PM – 5:30PM August 10, 2015 Session 4: Social Networks Session Chair: Lichen Zhang (Shanxi Normal University) #19: Dongping Deng, Hongwei Du, Xiaohua Jia and Qiang Ye Minimum-Cost Information Dissemination in Social Networks #117: Jaime Chon, Ross Raymond, Haiyan Wang and Feng Wang Modeling Flu Trends with Real-Time Geo-Tagged Twitter Data Streams #11: Yingjie Wang, Yingshu Li, Yang Gao and Xiangrong Tong A Trust Evolution Mechanism for Mobile Social Networks based on Wright-Fisher #49: Rongrong Wang, Minhui Xue, Kelvin Liu and Haifeng Qian Data-driven Privacy Analytics: A WeChat Case Study in Location-Based Social Networks #57: Tao Jing, Yating Zhang, Zhen Li, Qinghe Gao, Yan Huo and Wei Zhou DRL: A new mobility model in mobile social networks

9:00AM – 10:30AM August 11, 2015 Session 5: Wireless Sensor Networks – II Session Chair: Bin Lin (Dalian Maritime University) #88: Chang Lou, Xiaofeng Gao, Fan Wu and Guihai Chen Energy-Aware Clustering and Routing Scheme in Wireless Sensor Network #78: Huaida Hua, Jian Qiu, Xizhe Wang, Shiwei Song and Guojun Dai A Cluster Head Rotation Cooperative MIMO Scheme for Wireless Sensor Networks #80: Bo Liu, Jiuxin Cao, Jie Yin, Wei Yu, BenYuan Liu and Xinwen Fu On computing multi-agent itinerary planning in distributed wireless sensor networks #96: Ying Chen, Changying Li, Hongsong Zhu, Qiang Li and Jiguo Yu k-Perimeter Coverage Evaluation and Deployment in Wireless Sensor Networks #97: Chao Wang, Chuanwen Luo, Lili Jia, Qingbo Zhang and Jiguo Yu Domatic Partition in Homogeneous Wireless Sensor Networks	9:00AM – 10:30AM August 11, 2015 Session 6: Cyber-Physical Systems Session Chair: Licheng Wang (Beijing University of Posts and Telecommunications) #83: Chengzhe Lai, Rongxing Lu and Dong Zheng SGSA: Secure Group Setup and Anonymous Authentication in Platoon-Based Vehicular Cyber-Physical Systems #5: Xiaoheng Deng, Genghao Li and Mianxiong Dong Finding overlapping communities with random walks on line graph and attraction intensity #16: Libin Jiao, Guangzhi Zhang, Shenling Wang, Rashid Mehmood and Rongfang Bie Optimal Preference Detection based on Golden Section and Genetic Algorithm for Affinity Propagation Clustering #59: Feilong Lin, Cailian Chen, Cunqing Hua and Xinping Guan SDP: Separate Design Principle for Multichannel Scheduling in Priority-aware Packet Collection #60: Huafeng Chen, Qingshui Xue, Fengying Li, Huajun Zhang, Zhenfu Cao and Jianwen Hou Multi-Proxy Multi-Signature Binding Positioning Protocol
11:00AM – 12:30PM August 11, 2015 Session 7: Mobile Ad Hoc Networks Session Chair: Zhiguo Shi (Zhejiang University) #8: Ji Li, Siyao Cheng, Zhipeng Cai, Qilong Han and Hong Gao Bernoulli Sampling Based (epsilon,delta)-Approximate Frequency Query in Mobile Ad Hoc Networks #64: Tingting Yang, Chengming Yang, Zhonghua Sun, Hailong Feng, Jiadong Yang, Fan Sun and Ruilong Deng Resource Allocation in Cooperative Cognitive Maritime Wireless Mesh/Ad hoc Networks: An Game Theory View #121: Rong Ma and Zhenfu Cao Serial Number Based Encryption and Its Application for Mobile Networks #94: Kan Yu, Zhi Li, Yuyan Sun and Jiguo Yu A Poisson Distribution based Topology Control Algorithm for Wireless Sensor Networks Under SINR Model #102: Yang Wang, Shuang Wu, Xiaofeng Gao, Fan Wu and Guihai Chen Efficient Line K-Coverage Algorithms in Mobile Sensor Network	11:00AM – 12:30PM August 11, 2015 Session 8: Mobile Cloud Computing Session Chair: Xiaofeng Gao (Shanghai Jiao Tong University) #68: Lifei Wei Wei, Lei Zhang, Kai Zhang and Mianxiong Dong An Efficient and Secure Delegated Multi-Authentication Protocol for Mobile Data Owners in Cloud #85: Xiang Hou, Bin Lin, Rongxi He, Xudong Wang and Tao Yu Infrastructure Deployment and Optimization for Cloud-Radio Access Networks #17: Zhongyuan Zhao, Mugen Peng, Li Wang, Wenqi Cai, Yong Li and Hsiao-Hwa Chen Antenna Selection in Large-Scale Multiple Antenna Systems #95: Jinguo Li, Yaping Lin, Mi Wen, Chunhua Gu and Bo Yin Secure and Verifiable Multi-owner Ranked-keyword Search in Cloud Computing #76: Chenglin Fan, Qing Yang and Binhai Zhu Computing an Optimal Path with the Minimum Number of Distinct Sensors

2:00PM – 3:30PM August 11, 2015 Session 9: Smartphone Session Chair: Kai Fan (Xidian University) #2: Kathryn Grebel, Duy Dang, Liran Ma, Donnell Payne and Brenton Cooper iSound: A Smartphone Based Intelligent Sound Fusion System for the Hearing Impaired #23: Xi Zhou, Junqi Guo and Shenling Wang Motion recognition by using a stacked autoencoder-based deep learning algorithm with smart phones #55: Kai Fan, Nan Ge, Yuanyuan Gong, Hui Li, Ruidan Su and Yintang Yang ULRAS: Ultra-lightweight RFID Authentication Scheme for Mobile Device #74: Yizhen Zhang, Guobing Li, Guomei Zhang and Gangming Lyu Cooperative Beamforming and Artificial Noise Design for Secure Multi-Pair Communications in Wireless Two-way Relay Networks #65: Wenbin Yu, Cailian Chen, Bo Yang and Xinping Guan PPSSER: Privacy-Preserving Based Scheduling Scheme for Emergency Response in Medical Social Networks	2:00PM – 3:30PM August 11, 2015 Session 10: Cognitive Radio Networks Session Chair: Lifei Wei (Shanghai Ocean University) #61: Yi Li, Lu Zhou, Haojin Zhu and Limin Sun Secure and Privacy-preserving Location Proof in Database-driven Cognitive Radio Networks #54: Long Chen, Liusheng Huang, Hongli Xu, Hou Deng and Zehao Sun Optimal Channel Assignment Schemes for Multi-PU and Multi-SU Transmission Pairs in Underlay CRNs #72: Yanfei He, Yuan Wu, Jiachao Chen, Qinglin Zhao and Weidang Lu Optimal Power Allocations for Two-Users Spectrum Sharing Cognitive Radio with Interference Limit #101: Deming Pang, Gang Hu and Ming Xu Spectrum Sublet Game among Secondary Users in Cognitive Radio Networks #124: Xiaoshuang Xing, Hang Liu, Xiuzhen Cheng, Wei Zhou and Dechang Chen Cooperative Spectrum and Infrastructure Leasing on TV Bands
4:00PM – 5:30PM August 11, 2015 Session 11: Security – II Session Chair: Jian Qiu (Hangzhou Dianzi University) #86: Dongyang Xu, Pinyi Ren, Qinghe Du and Li Sun Joint Secure Beamforming and User Selection for Multi-User MISO Systems with Confidential Messages #87: Datong Xu, Pinyi Ren, Qinghe Du and Li Sun Information Security Enhancement with Actual Access Statuses of Users in the Multi-User System #91: Xiao Tang, Pinyi Ren, Qinghe Du and Li Sun Enhancing Wireless Security Against Reactive Jamming Attacks: A Game-Theoretical Framework #132: Maya Larson, Ruinian Li, Chunqiang Hu, Wei Li, Xiuzhen Cheng and Rongfang Bie A bidder-oriented privacy-preserving VCG auction Scheme #133: Maya Larson, Wei Li, Chunqiang Hu, Ruinian Li, Xiuzhen Cheng and Rongfang Bie A Secure Multi-Unit Sealed First-Price Auction Mechanism	4:00PM – 5:30PM August 11, 2015 Session 12: Cellular Networks Session Chair: Lei Lei (Beijing Jiaotong University) #131: Pengbo Si, Qiuran Li, Yanhua Zhang and Yuguang Fang Information-Centric Resource Management for Air Pollution Monitoring with Multihop Cellular Network Architecture #20: Lei Lei, Huijian Wang, Xuemin Shen, Zhangdui Zhong and Kan Zheng Flow-Level Performance of Device-to-Device Overlaid OFDM Cellular Networks #66: Jun Huang, Yi Sun, Cong-Cong Xing, Yanxiao Zhao and Qianbin Chen A Distributed Game-Theoretic Power Control Mechanism for Device-to-Device Communications Underlaying Cellular Network #100: Zhonghong Ou, Jun Wu and Antti Ylä-Jääski Big-Little-Cell Based "Handprint" Positioning System #120: Kwang-Cheng Chen, Whai-En Chen, Wu-Chun Chung, Yeh-Ching Chung, Qimei Cui, Cheng-Hsin Hsu, Shao-Yu Lien, Zhisheng Niu, Zhigang Tian, Jing Wang and Liqiang Zhao Efficient Network Structure of 5G Mobile Communications

9:00AM – 10:30AM August 12, 2015 Session 13: Algorithms Session Chair: Qingshui Xue (Shanghai Jiao Tong University) #81: Qifan Qi, Zhou Su, Qichao Xu, Jintian Li, Dongfeng Fang and Bo Han Delivering Content with Defined Priorities by Selective Agent and Relay Nodes in Content Centric Mobile Social Networks #82: Licheng Wang, Yun Pan, Minzheng Jia and Ahmad Haseeb A Heuristic Stream Order Scheduling Algorithm for Intra-Superframe Power Management in WPANs #48: Zhonghu Xu and Kai Xing Network Reachability Analysis on Temporally Varying Interaction Networks #71: Hongtao Wang, Li Qiang, Feng Yi, Qi Han and Limin Sun Influential Spatial Facility Prediction over Dynamic Objects #90: Haixu Wang, Shaohua Wu, Jingran Yang and Chanjuan Ding High performance DDDT-CWT based compressed sensing recovery of images via structured sparsity	9:00AM – 10:30AM August 12, 2015 Session 14: Wireless Communications Session Chair: Li Wang (Beijing University of Posts and Telecommunications) #50: Li Wei, Xing Kai and Xu Jing A Localized Channel Allocation Approach for Realtime Reliable and High Throughput Communication in Multi-channel Networks #79: Hongliang He, Pinyi Ren, Qinghe Du and Li Sun Estimation Based Adaptive ACB Scheme for M2M Communications #93: Li Feng, Jiguo Yu, Xiuzhen Cheng and Shengling Wang Impact of a Deterministic Delay in the DCA Protocol #1: Zhu Tang, Zhenqian Feng, Wanrong Yu, Wei Han, Baokang Zhao, Chunqing Wu, Xilong Mao and Feng Chen A Quasi-dynamic Inter-satellite Link Reassignment Method for LEO Satellite Networks #22: Chang Liu, Chunqing Wu and Wanrong Yu FFDP: A Full-load File Delivery Protocol in Satellite Network Communication
11:00AM – 12:30PM August 12, 2015 Session 15: Wireless LANs Session Chair: Yuan Wu (Zhejiang University of Technology) #67: Bing Feng, Zhen Wang, Chi Zhang, Nenghai Yu and Yuguang Fang Soft Reservation Based Prioritized Access: Towards Performance Enhancement for VoIP over WLANs #73: Qinglin Zhao, Taka Sakurai, Jiguo Yu and Limin Sun On the Stable Throughput in Wireless LANs #52: Mingwei Dai and Xiaoxia Huang Radio Signal Based Device-free Velocity Recognition #115: Yen-Hung Chen, Ching-Neng Lai and Yuan-Cheng Lai A group bandwidth reservation scheme for the control channel in IEEE 802.11p/1609 networks #130: Zhefeng Jiang and Shiwen Mao Online Channel Assignment, Transmission Scheduling, and Transmission Mode Selection in Multi-channel Full-duplex Wireless LANs #92: Xintao Hong, Hongbin Liang and Zengan Gao Adaptive Resource Allocation for Anti-Money Laundering based on SMDP #7: Xiaoming Wang, Yaguang Lin, Lichen Zhang and Zhipeng Cai A Double Pulse Control Strategy for Misinformation Propagation in Human Mobile Opportunistic Networks #116: Shanhe Yi, Zhengrui Qin and Qun Li Security and Privacy Issues of Fog Computing: A Survey	11:00AM – 12:30PM August 12, 2015 Session 16: Workshop Session Chair: Dongxiao Yu (The University of Hong Kong) inv-2: Jipeng Zhou, Xuefeng Wang, Haisheng Tan and Yuhui Deng Ant Colony-based Energy Control Routing Protocol for Mobile Ad Hoc Networks inv-4: Shuqiang Wang, Yanyan Shen, Jinxing Hu, Zhe Xuan and Zhe Lu Hadoop-based Analysis for Large-Scale Click-through Patterns in 4G Network inv-5: Tian Wang, Zhen Peng, Junbin Liang, Yiqiao Cai, YongHong Chen, Hui Tian and Bineng Zhong Detecting Targets Based on a Realistic Detection and Decision Model in Wireless Sensor Networks inv-6: Wenchao Li, Jiguo Yu, Dongxiao Yu and Baogui Huang Constructing Virtual Backbone with Bounded Diameters in Cognitive Radio Networks inv-7: Xueyan Sun, Xiaowu Liu and Shuwen Zhang A Simplified Attack-Defense Game Model For NSSA

Keynote I: Code Hopping Multiple Access Based on Orthogonal Complementary Codes
Professor Hsiao-Hwa Chen, National Cheng Kung University

Abstract: Code hopping multiple access (CHMA) is a newly emerging multiple access technique with its potential to offer a high security and capacity. Unfortunately, orthogonality amongst user signals in existing CHMA schemes can be preserved only in synchronous channels under an assumption that neither multipath interference (MI) nor multiple access interference (MAI) exists. Exploiting their ideal orthogonality, we apply orthogonal complementary codes to CHMA systems to overcome the problems with existing CHMA schemes. In particular, we will show that the application of orthogonal complementary codes can significantly improve the performance of a CHMA system due to its unique collision resistant capability. The properties and BER performance of the proposed system are analyzed for both uplink and downlink applications, where the system may suffer MI and MAI simultaneously. Simulation results show that the complementary coded CHMA with channel coding can provide a high capacity and a robust performance.

Bio: Hsiao-Hwa Chen is currently a Distinguished Professor in the Department of Engineering Science, National Cheng Kung University, Taiwan. He obtained his BSc and MSc degrees from Zhejiang University, China, and a PhD degree from the University of Oulu, Finland, in 1982, 1985 and 1991, respectively. He has authored or co-authored over 400 technical papers in major international journals and conferences, six books and more than ten book chapters in the areas of communications. He served as the general chair, TPC chair and symposium chair for many international conferences. He served or is serving as an Editor or/and Guest Editor for numerous technical journals. He is the founding Editor-in-Chief of Wiley's Security and Communication Networks Journal (www.interscience.wiley.com/journal/security). He is the recipient of the best paper award in IEEE WCNC 2008 and a recipient of IEEE Radio Communications Committee Outstanding Service Award in 2008. Currently, he is also serving as the Editor-in-Chief for IEEE Wireless Communications. He is a Fellow of IEEE, a Fellow of IET, and an elected Member at Large of IEEE ComSoc.

Keynote II: Green Multi-Homing Video Transmission in Wireless Heterogeneous Networks
Professor Weihua Zhuang, University of Waterloo

Abstract: The wireless communication medium has become a heterogeneous environment with various wireless access options and overlapped coverage from different networks. Mobile terminals (MTs), equipped with multi-homing capabilities, can explore network cooperation to simultaneously aggregate the offered resources from different networks to support the same application and thus increase the data rate. On the other hand, as the gap between the MT energy demand and battery capacity continues to increase, the MT operational time in between battery charging has become a significant factor in service quality. In this presentation, we introduce an energy management system for MTs to support a sustainable multi-homing video transmission, over the call duration, in a heterogeneous wireless access medium. Through statistical video quality guarantee, the MT can determine a target video quality lower bound for a target call duration. The target video quality lower bound captures the MT available energy at the beginning of the call, the time varying bandwidth availability and channel conditions at different radio interfaces, the target call duration, and the video packet characteristics in terms of distortion impact, delay deadlines, and video packet encoding statistics. The MT then adapts its energy consumption to support at least the target video quality lower bound during the call. Simulation results demonstrate the superior performance of the proposed framework over two benchmarks, and some performance trade-offs.

Bio: Weihua Zhuang (M'93-SM'01-F'08) has been with the Department of Electrical and Computer Engineering, University of Waterloo, Canada, since 1993, where she is a Professor and a Tier I Canada Research Chair in Wireless Communication Networks. Her current research focuses on resource allocation and QoS provisioning in wireless networks, and on smart grid. She is a co-recipient of several best paper awards from IEEE conferences. Dr. Zhuang was the Editor-in-Chief of IEEE Transactions on Vehicular Technology (2007-2013), and the Technical Program Symposia Chair of the IEEE Globecom 2011. She is a Fellow of the IEEE, a Fellow of the Canadian Academy of Engineering, a Fellow of the Engineering Institute of Canada, and an elected member in the Board of Governors and VP Mobile Radio of the IEEE Vehicular Technology Society. She was an IEEE Communications Society Distinguished Lecturer (2008-2011).

Keynote III: D2D: Research Trend and Future Perspective
Professor Nei Kato, Tohoku University

Abstract: As driven by the proliferous development of media-hungry handheld devices and online applications, there has been an unprecedented consumer demand for faster and cheaper mobile broadband usage. Given the impossibility of meeting this demand by adding spectrum, researchers around the whole world are bending over backwards to squeeze out more data bits from the limited available frequency resources. Among various efforts towards this end, device-to-device (D2D) communication which allows mobile UEs in proximity to communicate directly via licensed/unlicensed band with/without the support from the operator, has gained intensive research interests from academia, industry, and standard bodies. In this talk, I will showcase the potentials of D2D communications to improve system capacity, enhance spectral efficiency, increase coverage and connectivity, and identify the new challenges to co-existence and network management. In particular, I will introduce the applications of D2D for traffic relaying in disaster relief, and for load balancing in futuristic wireless networks. Finally, new research directions will be demonstrated.

Bio: Nei Kato received his Bachelor Degree from Polytechnic University, Japan, in 1986, M.S. and Ph.D. Degrees in information engineering from Tohoku University, in 1988 and 1991 respectively. He joined Computer Center of Tohoku University as an assistant professor in 1991, and was promoted to full professor position with Graduate School of Information Sciences, Tohoku University, in 2003. He became a Strategic Adviser to the President of Tohoku University in 2013. He has been engaged in research on computer networking, wireless mobile communications, satellite communications, ad hoc & sensor & mesh networks, smart grid, and pattern recognition. He has published more than 300 papers in peer-reviewed journals and conference proceedings. He currently serves as a Member-at-Large on the Board of Governors, IEEE Communications Society, the Chair of IEEE Ad Hoc & Sensor Networks Technical Committee, the Chair of IEEE ComSoc Sendai Chapter, the Associate Editor-in-Chief of IEEE Network Magazine, the Associate Editor-in-Chief of IEEE Internet of Things Journal, an Area Editor of IEEE Transactions on Vehicular Technology. He has served as the Chair of IEEE ComSoc Satellite and Space Communications Technical Committee(2010-2012), the Chair of IEICE Satellite Communications Technical Committee(2011-2012). His awards include Minoru Ishida Foundation Research Encouragement Prize(2003), Distinguished Contributions to Satellite Communications Award from the IEEE Communications Society, Satellite and Space Communications Technical Committee(2005), the FUNAI information Science Award(2007), the TELCOM System Technology Award from Foundation for Electrical Communications Diffusion(2008), the IEICE Network System Research Award(2009), the IEICE Satellite Communications Research Award(2011), the KDDI Foundation Excellent Research Award(2012), IEICE Communications Society Distinguished Service Award(2012), Distinguished Contributions to Disaster-resilient Networks R&D Award from Ministry of Internal Affairs and Communications, Japan(2014), seven Best Paper Awards from IEEE GLOBECOM/WCNC/VTC, and IEICE Communications Society Best Paper Award(2012). Besides his academic activities, he also serves on the expert committee of Telecommunications Council, Ministry of Internal Affairs and Communications, and as the chairperson of ITU-R SG4 and SG7, Japan. Nei Kato is a Distinguished Lecturer of IEEE Communications Society and Vehicular Technology Society. He is a fellow of IEEE and IEICE.