

# Dr. Guanglin Zhang

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## RESEARCH INTERESTS

- Wireless Networks
- Vehicular Networks
- Smart Mirco-grid
- Content-Centric Wireless Networks
- TV White Space System
- Mobile Edge Computing

## EDUCATION

PH. D. IN COMMUNICATIN and INFORMATION SYSTEMS, 2012

Department of Electronic Engineering  
Shanghai Jiao Tong University, Shanghai, China  
Advisor: Prof. Xinbing Wang and Prof. Youyun Xu

M. S. IN OPERATIONAL RESEARCH and CONTROL THEORY, 2006

Department of Mathematics  
Shanghai University, Shanghai, China  
Advisor: Prof. Hanxing Wang

B. S. IN APPLIED MATHEMATICS, 2003

Shandong Normal University, Ji'nan, China

## WORK EXPERIENCE

PhD ADVISOR, DEPARTMENT CHAIR,

Donghua University, Shanghai, China

2018/06-

PROFESSOR, Donghua University, Shanghai, China

2017/09-

ASSOCIATE PhD ADVISOR, DEPARTMENT CHAIR,

Donghua University, Shanghai, China

2015/04-2018/05

ASSOCIATE PROFESSOR, Donghua University, Shanghai, China

2013/11-2017/08

POSTDOCTORAL RESEARCH ASSOCIATE,

the Chinese University of Hong Kong, Hong Kong

2013/01-2014/01

ASSISTANT RESEARCHER, LECTURE, ASSOCIATE PROFESSOR,  
Shanghai University of Electric and Power, Shanghai, China 2006/09-2013/11

## INTERNATINAL EXPERIENCE

POSTDOCTORAL RESEARCH ASSOCIATE,  
the Chinese University of Hong Kong, Hong Kong 2013/01-2014/01

## RESEARCH GRANTS

- The Capacity and Caching Optimization of Content Centric Vehicular Networks, *National Natural Science Foundation of China(NSFC)*, 2018.1-2021.12. (PI)
- The capacity of Large Scale VANETs with Delay Constraints, *National Natural Science Foundation of China(NSFC)*, 2014.1-2016.12. (PI).
- Key techniques on the networked regulation and scheduling for smart micro-grid with distributed energy and energy storage systems, *Internatinal S&T Cooperation Program of Shanghai Science & Technology Commission*, 2015.9-2018.9. (PI).
- The capacity of Large Scale VANETs with Directional Antenna and Delay Constraints, *Innovation Program of Shanghai Municipal Education Commission*, 2014.1-2016.12. (PI).
- Large Scale Wireless Networks: Performance Analysis and Optimization, *DHU Distinguished Young Professor Program*, 2015.1-2017.12. (PI)
- Performace Analysis of Large Scale Mobile Ad Hoc Networks, *the Fundamental Research Funds for the Central Universities*, 2014.1-2016.12. (PI)
- Capacity of Time-Variant Social Network, *the Scientific Research Foundation*, 2014.1-2014.12. (PI)
- Random Walk on Graphs and Its Applications in Communication networks, *Shanghai Committee of Scienceand Technology*, 2008.1-2009.12. (PI).
- Indoor TV White Space: Measurement and Prototype System Design, 1.5 USD, *MSRA Regional Seed Grant*,2013.1-2014.6. (Co-investigator).

## PUBLICATIONS

### Journal Papers

- [1] **Guanglin Zhang**, W. Zhang, Y. Cao, D. Li, and L. Wang, "Energy-Delay Tradeoff for Dynamic Offloading in Mobile-Edge Computing System with Energy Harvesting Devices," **IEEE Transactions on Industrial Informatics**, 2018. (SCI, IF: 6.764)
- [2] C. Guo, D. Li, **Guanglin Zhang**, and M. Zhai, "Real-Time Path Planning in Urban Area via VANET-Assisted Traffic Information Sharing," **IEEE Transactions on Vehicular Technology** 67(7): 5635-5649, 2018. (SCI, IF: 4.066) (Corresponding Author)
- [3] J. Chen, D. Li, **Guanglin Zhang**, and X. Zhang, "Localized Space-Time Autoregressive Parameters Estimation for Traffic Flow Prediction in Urban Road Network," **Applied Sciences**, 2018 (SCI, IF: 1.679).
- [4] D. Li, P. Deng, L. Gao, Y. Xu, and **Guanglin Zhang**, "Joint Access Spectrum and Backhaul Energy Allocation for Green Cognitive Heterogeneous Networks," **IEEE Access**, 2018. (SCI, IF: 3.422)
- [5] W. Zhang, **Guanglin Zhang**, Y. Zheng, L. Xie, Y. Kiat, "Energy Efficiency Consideration for Indoor Femtocell Networks in TV White Spaces," **IEEE Access** 6: 1565-1576 (2018)(SCI,IF:3,422)
- [6] W. Zhang, **Guanglin Zhang**, Y. Zheng, L. Yang, C. K. Yeo, "Spectrum Sharing for Heterogeneous Networks and Application Systems in TV White Spaces," **IEEE Access** 6: 19833-19843 (2018)(SCI,IF:3,422)
- [7] W. Zhang, J. Yang, **Guanglin Zhang**, L. Yang, and C.K. Yeo, "TV White Space and Its Applications in Future Wireless Networks & Communications: A Survey," accepted in **IET Communications**, 2018.
- [8] **Guanglin Zhang**, J. Liu, and J. Ren, "Multicast Capacity of Cache Enabled Content-Centric Wireless Ad Hoc Networks", **China Communications**, 2017.07.01. (SCI, IF: 0.903)(Corresponding Author)
- [9] **Guanglin Zhang**, J. Liu, J. Ren, L. Wang and J. Zhang, "Capacity of Content-Centric Hybrid Wireless Networks", in **IEEE Access**, 2017.03.11, 5: 1449~1459. (SCI, IF: 3.244)(Corresponding Author)
- [10] **Guanglin Zhang**, Y. Cao, Y. Cao, D. Li, and L. Wang, "Optimal Energy Management for Microgrids with Combined Heat and Power (CHP) Generation, Energy Storages, and Renewable Energy Sources", **Energies**, 2017, 10(9), 1288. (SCI, IF: 2.262)
- [11] **Guanglin Zhang**, C. Qi, W. Zhang, J. Ren, and L. Wang, "Estimation and Healing of Coverage hole in Hybrid Sensor Networks: A Simulation Approach", **Sustainability**, 2017. (SCI, IF: 1.789)
- [12] J. Ren, **Guanglin Zhang**, and D. Li, "Multicast Capacity for VANETs with Directional Antenna and Delay Constraint under Random Walk Mobility Model", in **IEEE Access** 5: 3958-3970, 2017. (SCI, IF: 3.244)(Corresponding Author)
- [13] X. Ying, J. Zhang, L. Yan, Y. Cheng, **Guanglin Zhang**, M. Chen, and R. Chandra, "Exploring Indoor White Spaces in Metropolises", accepted for publication in **ACM Transactions on Intelligent Systems and Technology** (ACM TIST), 2017.
- [14] Z. Zheng, G. Xiao, G. Wang, **Guanglin Zhang**, and K. Jiang, "Mean first passage time of preferential random walks on complex networks with applications", **Mathematical Problems in Engineering**, 2017. (SCI, IF: 0.802)

- [15] C. Guo, D. Li, **Guanglin Zhang**, and Z. Cui, "Data Delivery Delay Reduction for VANETs on Bi-directional Roadway", in **IEEE Access**, vol. 4, pp. 8514-8524, 2016. (SCI, IF: 3.244)(Corresponding Author)
- [16] **Guanglin Zhang**, S. You, J. Ren, D. Li, and L. Wang, "Local Coverage Optimization Strategy Based on Voronoi for Directional Sensor Networks", in **Sensors**, 2016, 16(12), 2183. (SCI, IF: 2.677)(Corresponding Author)
- [17] C. Chau, **Guanglin Zhang**, and M. Chen, "Cost Minimizing Online Algorithms for Energy Storage Management with Worst-case Guarantee", in **IEEE Transactions on Smart Grid**, Volume: 7, Issue: 6, Nov. 2016. (SCI, IF: 6.645 )
- [18] D. Li, H. Zhao, F. Tian, B. Huang, Y. Xu, **Guanglin Zhang**, "Multipath network coding and multicasting for content sharing in wireless P2P networks: A potential game approach", **Computer Communications** 96: 17-28 (2016) (SCI, IF: 3.338)
- [19] Y. Yu, D. Li, **Guanglin Zhang**, et al., "A Hierarchical Link Scheme in Multi-Hop VANETs with Delay Analysis for Congestion Scenario," *Journal of Computer and Communications*, vol.4, pp. 10-22, 2016. (Corresponding Author)
- [20] Z. Cui, D. Li, **Guanglin Zhang**, et al., "The Next-Hop Node Selection Based GPSR in Vehicular Ad Hoc Networks," *Journal of Computer and Communications*. vol.4, pp.44-56, 2016.
- [21] **Guanglin Zhang**, Y. Xu, X. 5.Wang, X. Tian, J. Liu, X. Gan, H. Yu and L. Qian, "Multicast Capacity for Hybrid VANETs with Directional Antenna and Delay Constraint ," in **IEEE Journal on Selected Areas in Communications**, Vol. 30, No. 4, pp. 818-833 2012.
- [22] L. Fu, L. Qian, X. Tian, H. Tang, N. Liu, **Guanglin Zhang** and X. Wang, "Percolation Degree of Secondary Users in Cognitive Networks," in **IEEE Journal on Selected Areas in Communications**, Vol. 30, No. 10, pp. 1994 - 2005, 2012.
- [23] **Guanglin Zhang**, Y. Xu, X. Wang, and M. Guizani, "Capacity of Hybrid Wireless Networks with Directional Antenna and Delay Constraint," in **IEEE Transactions on Communications**, Vol. 58, No. 7, pp. 2097-2106 2010.
- [24] **Guanglin Zhang**, H. Wang, "The Expected Hitting Times for Random Walks on Finite Graph with Congestion Points", in *Science Technology and Engineering*, vol. 6, no. 2, pp. 105 -108, 2006.
- [25] **Guanglin Zhang**, Dafan Fang, "Recurrence of Random Walks on Half-line in Independent Random Environment ," *Communication on Application Mathematics and Computation*, 2006.
- [26] N. Yu, **Guanglin Zhang**, "On the 1+X" teaching pattern of Advanced Mathematics," in *College Mathematics*, 2010. (In Chinese)

#### Referred Conference and Workshop Papers

- [27] Y. Cao, **Guanglin Zhang**, D. Li, and L. Wang, "Online Energy Management for Smart Communities with Heterogeneous Demands," *IEEE Global Communications Conference (GLOBECOM)*, Abu Dhabi, UAE, Dec., 2018. (EI) (**Corresponding Author**).
- [28] **Guanglin Zhang**, M. Qin, Z. Shen, and L. Wang, "Energy Management for Smart Base Stations with Heterogeneous Energy Harvesting Devices," *IEEE Global Communications Conference (GLOBECOM)*, Abu Dhabi, UAE, Dec., 2018. (EI)

- [29] **Guanglin Zhang**, K. Yi, W. Zhang, D. Li, "Cost Reduction for Micro-Grid Powered Data Center Networks with Energy Storage Devices," Wireless Algorithms, Systems, and Applications (**WASA**), Tianjin, June, 2018. (EI)
- [30] **Guanglin Zhang**, Y. Chen, Z. Shen and L. Wang, "Energy Management for Multi-User Mobile-Edge Computing Systems with Energy Harvesting Devices and QoS Constraints," IEEE International Workshop on Sustainable Edge Computing for IoT systems, **ICCCN**, Hangzhou, July, 2018. (EI)
- [31] **Guanglin Zhang**, Y. Cao, and D. Li, "Energy Cost Reduction for Hybrid Energy Supply Base Stations with Sleep Mode Techniques," IEEE International Conference on Communications (**ICC**), Kansas City, May, 2018. (EI)
- [32] C. Qi, **Guanglin Zhang**, D. Li, and J. Ren, "Coverage Holes Detecting and Healing in Hybrid Wireless Networks", **EAI QoE-RAMC 2017**.(EI) (Corresponding Author)
- [33] C. Qi, **Guanglin Zhang**, W. Zhang, and D. Li, "An Indoor TV White Space Resource Collecting and APs Locations Selecting Scheme", IEEE **CBD 2017**.(EI)(Corresponding Author)
- [34] C. Guo, D. Li, **Guanglin Zhang**, Z. Cui, "Data delivery delay estimation based on left-turn in vehicular ad hoc networks", International Conference on Progress in Informatics and Computing, December, 2016.(EI)
- [35] X. Zhang, D. Li, J. Wang, **Guanglin Zhang**, X. Jiang, "Faster parking and less cruise for public parking spot discovery: Modeling and analysis based on Timed Petri Nets," **ICNSC 2016**: 1-6. (EI)
- [36] J. Liu, **Guanglin Zhang**, D. Li, J. Ren, "Capacity of Content-Centric Hybrid Wireless Networks," International Conference on Machine Learning and Intelligent Communications ( **MLICOM**), 27-28, August, 2016. (Corresponding Author) (Best Paper Award)
- [37] S. You, **Guanglin Zhang**, D. Li, "Coverage improvement strategy based on Voronoi for directional sensor networks," International Conference on Machine Learning and Intelligent Communications ( **MLICOM**), 27-28, August, 2016. (Corresponding Author)
- [38] S.Wu, D. Li, **Guanglin Zhang**, et al., "Density-based Dynamic Revision Path Planning in Urban Area via VANET," International Conference on Machine Learning and Intelligent Communications ( **MLICOM**), 27-28, August, 2016. (Corresponding Author)
- [39] Y. Yang, D. Li, **Guanglin Zhang**, et al., "An Emergency Event Driven Routing Algorithm for Bi-directional Highway in Vehicular Ad Hoc Networks," International Conference on Machine Learning and Intelligent Communications ( **MLICOM**), 27-28, August, 2016. (Corresponding Author)
- [40] Y. Shen, X. Ou, J. Xu, **Guanglin Zhang**, L. Wang, and D. Li, "Optimal Energy Storage Management for Microgrids with ON/OFF Co-Generator: A Two-Time-Scale Approach," Accepted by the IEEE Global Conference on Signal and Information Processing (**GlobalSIP**), Orlando, Florida, USA, December 14-16, 2015. (Corresponding Author)
- [41] X. Ou, Y. Shen, Z. Zeng, **Guanglin Zhang**, and L. Wang, "Cost Minimization Online Energy Management for Microgrids with Power and Thermal Storages," **IEEE ICCCN**, 2015, Workshop on WiMAN. (Corresponding Author)

- [42] L. Mak, M. Chen, **Guanglin Zhang**, L. Huang, and H. Zeng, "Online Energy Management Strategy for Hybrid Electric Vehicle," *ACM E-energy*, 2015, Poster.
- [43] D. Li, **Guanglin Zhang**, F. Tian, and H. Zhao, "Dynamics of Multipath Network Coding and Multicasting in Wireless P2P Networks," *IEEE WCNC*, 2015, Workshop WDPC.
- [44] X. Ying, J. Zhang, L. Yan, **Guanglin Zhang**, M. Chen, and R. Chandra, "Exploring Indoor White Spaces in Metropolises," in *ACM Mobicom*, 2013.
- [45] **Guanglin Zhang**, L. Wang, "Multicast Capacity of Wireless Ad Hoc Networks with Transmission Uncertainty, " *IEEE ICC* workshop of D2D communications, 2013.
- [46] X. Cao, J. Zhang, **Guanglin Zhang**, L. Fu and X. Wang, "Heterogeneous Multicast Networks With Wireless Helping Networks," in the 7th International Conference on Wireless Algorithms, Systems, and Applications, (*WASA*), 2012.
- [47] **Guanglin Zhang**, Youyun Xu and Xinbing Wang, "Multicast Capacity for Hybrid MANETs with Direction Antenna and Delay Constraint," *IEEE GLOBLECOM*, 2011.

### Patents

- Yuanlin Yu, Demin Li, **Guanglin Zhang**, Zhaoyuan Cui, Xiaolu Zhang, "A kind of on-board vehicle in self-organizing network under the uniform distribution of hierarchical multiple hops link method", China patent pending.
- Xiaoming Wang, Demin Li, Jianbin Chen, Xiaolu Zhang, **Guanglin Zhang**, Hainie Tang, "An earthquake industry cluster link node monitoring and control system", China patent.
- Yuanlin Yu, Demin Li, Zhaoyuan Cui, Chang Guo, Zeyang Wang, **Guanglin Zhang**, Xiaolu Zhang, "A search based on parking and car parking system", China patent pending.
- Xiaolu Zhang, Demin Li, **Guanglin Zhang**, "A parking lot selection system based on bus backbone", China patent pending.
- Kaijiang Yi, **Guanglin Zhang**, Changle Wu, Wenqian Zhang, Demin Li, "A cost reduction method for datacenters with elastic workload scheduling and dynamic server", China patent pending.
- Chengsi Qi, **Guanglin Zhang**, Jiajie Ren, "An emergency communication system and method based on USRP", China patent pending.

### TEACHING

- 2016 - 2017: Wireless Mobile Communication (Graduate-level)
- 2016 - 2017: Communication Theory( undergraduate-level)
- 2016 - 2017: Modern Communication Technology ( International Graduate-level)

## STUDENT ADVISING

- **PhD Students**

- Xiaolu Zhang (2013-)
- Jianbin Chen (2013-)
- Xiaoming Wang (2014-)
- Chang Guo (2015-)
- Jiajie Ren (2015-)
- Yongsheng (2016-)
- Wenqian Zhang (2017-)
- Zhirong Shen (2018-)

- **Master Students**

- 
- Zhengjian Yang (2015-)
- Yu Cao (2016-)
- Kaijiang Yi (2016-)
- Muhammad Ikram Shahzad (2016-)
- Syed Muhammad Abis Naqvi (2016-)
- Said Zarmal (2016-)
- Zhirong Shen (2017-)
- Yan Chen (2017-)
- Mengjiao Qin (2017-)

- **Undergraduate Students**

- Luyao Wang
- Shun Zhang
- Xueying Liu
- Naixin Zhang
- Pei Tian
- Tong Zhao
- Sili Wu
- Xu Gong

- Qi Wang
- Lin Wang
- Xin Li
- Yangyang Peng

- **Alumni**

- Jian Liu (Bank of China, Shanghai)
- Shan You (Ctrip, Shanghai)
- Chengsi Qi (Liulishuo)
- Changle Wu (HIKVISION)
- Yibo Li (Development Bank, Shanghai)
- Xin Zhang (Inner Mongolia Power (Group) Co., LTD)
- Taojun Fang (Master Student, Kyushu University, Japan)
- Yiren Shen (Master Student, University of Toronto, Canada)
- Xiaoxian Ou (Master Student, University of Edinburgh, England)
- Qirui Wu (Master Student, King's College London, England)
- Qiuchen Li (Agricultural Bank of China, Guizhou)
- Shiyun Chen (7fgame, Shanghai)
- Qiufei Jiang (China Telecom Co., Ltd., Shanghai)
- Xiaolin Lu (Master Student, Shanghaitech University)
- Jie Zhang (Master Student, University of Science and Technology of China)
- Longlong Li (Master Student, Donghua University)

## PROFESSIONAL ACTIVITIES

### **Editorial Board:**

- China Communications (SCI), 2017-

### **Associate Editor:**

- IEEE Access (SCI), 2017-

### **Associate Editor:**

- Journal of Communications and Information Networks (JCIN), 2017-

### **Technical Committee Program Chairs:**



- EAI International Conference on Machine Learning and Intelligent Communications (MILICOM), 2016

**Technical Committee Members:**

- IEEE ICC 2016-2017
- IEEE Globecom 2016-2017
- ITC 2016
- IEEE ICC-Symposium Mobile and Wireless Networks 2015
- IEEE ICC-Symposium Signal Processing for Communications 2015, 2014
- IEEE/CIC ICC-Workshop on Wireless Networking and Multimedia 2014
- IEEE International Conference on Connected Vehicles (ICCVe) 2014, 2013
- IEEE International Symposium on Circuits and Systems (ISCAS) 2014
- IEEE Symposium on Wireless Technology and Applications (ISWTA) 2012-2014
- WCSP-Symposium Future Networking 2014
- WCSP-Symposium Emerging Areas in Wireless Communications 2014
- IEEE/CIC ICC-International Workshop on Device-to-Device Communications and Networks 2013
- Asia-Pacific Conference on Communications (APCC) 2013
- International Wireless Internet Conference (WiCON) 2013
- IEEE Symposium on Computers & Informatics (ISCI) 2013
- International Conference on Wireless Algorithms, Systems, and Applications (WASA) 2012
- IEEE Asia-Pacific Conference on Applied Electromagnetics (APACE) 2012

**Journal Reviewers:**

- IEEE Trans on Networking
- IEEE Journal on Selected Areas in Communications
- IEEE Trans on Mobile Computing
- IEEE Transactions on Smart Grid
- IEEE Trans on Parallel and Distributed Systems
- IEEE Trans on Wireless Communication
- IEEE Transactions on Vehicular Technology

- IEEE Journal of Selected Topics in Signal Processing
- IEEE Communication Letter
- Transactions on Internet and Information Systems
- Wiley Journal of Wireless Communications and Mobile Computing
- International Journal of Ultra Wideband Communications and Systems
- KSII Transactions on Internet and Information Systems

**Professional Memberships:**

- ACM member
- IEEE member
- CCF member
- Member of Youth Working Committee of China Communication Society
- Member of CCF Shanghai
- Member of CCF YOCSEF Shanghai
- Member of Youth Working Committee of Shanghai Computer Society
- Secretary of DHU Young Scholar Association