

# Xiaolong Zheng

Room 11-208, East Main Building, Tsinghua University, Beijing, China  
xiaolong@greenorbs.com • +86 18601572827 • <http://cse.ust.hk/~xzhengaa>

## RESEARCH INTERESTS

Wireless Network, Mobile Computing, Human-Centric Computing.

## EDUCATION

**The Hong Kong University of Science and Technology**, Clearwater Bay, Hong Kong

▪ *Doctor of Philosophy (Ph.D.)*

Sep 2011 – Jun 2015

- Department: Computer Science and Engineering
- Thesis: Low-power, High-throughput Protocol Design for Wireless Sensor Networks under Heterogeneous Interference
- Adviser: Professor Yunhao Liu and Professor Lionel M. Ni

**Dalian University of Technology**, Dalian, Liaoning, China

▪ *Bachelor of Engineering (B.E.)*

Sep 2007 – Jul 2011

- Department: School of Software
- Thesis: Design of CO<sub>2</sub> Wireless Sensor Networks Node Based on TinyOS
- Adviser: Professor Lei Wang and Professor Ming Zhu

## WORK EXPERIENCE

**Tsinghua University**, Beijing, China

▪ *Assistant Research, Postdoctoral Research Associate*

Sep 2015 – present

- Department: School of Software
- Supervisors: Professor Yunhao Liu

## PUBLICATIONS

### CONFERENCES

- [1] **Xiaolong Zheng**, Jiliang Wang, Longfei Shangguan, Zimu Zhou, Yunhao Liu, “Smokey: Ubiquitous Smoking Detection with Commercial WiFi Infrastructures”, in *Proceedings of IEEE International Conference on Computer Communications (INFOCOM)*, San Francisco, USA, Apr 2016.
- [2] Longfei Shangguan, Zimu Zhou, **Xiaolong Zheng**, Lei Yang, Yunhao Liu, Jinsong Han, “ShopMiner: Mining Customer Shopping Behavior in Physical Clothing Stores with Passive RFIDs”, in *Proceedings of ACM Conference on Embedded Networked Sensor Systems (SenSys)*, Seoul, South Korea, Nov 2015.
- [3] Daibo Liu, Mengshu Hou, Zhichao Cao, Yuan He, Xiaoyu Ji, **Xiaolong Zheng**, “COF: Exploiting Concurrency for Low Power Opportunistic Forwarding”, in *Proceedings of IEEE International Conference on Network Protocols (ICNP)*, San Francisco, USA, Nov 2015.
- [4] Jiliang Wang, **Xiaolong Zheng**, Xufei Mao, Zhichao Cao, Daibo Liu, Yunhao Liu, “Connecting the Dots: Reconstructing Network Behavior with Individual and Lossy Logs”, in *Proceedings of International Conference on Parallel Processing (ICPP)*, Beijing, China, Sep 2015.
- [5] **Xiaolong Zheng**, Zhichao Cao, Jiliang Wang, Yuan He, Yunhao Liu, “ZiSense: Towards Interference Resilient Duty Cycling in Wireless Sensor Networks”, in *Proceedings of ACM Conference on Embedded Networked Sensor Systems (SenSys)*, Memphis, USA, Nov 2014.
- [6] Longfei Shangguan, Zheng Yang, Zimu Zhou, **Xiaolong Zheng**, Chenshu Wu, Yunhao Liu, “CrossNavi: Enabling Crossroad Navigation for the Blind with Commodity Phones”, in *Proceedings of ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, Seattle, USA, Sep 2014.
- [7] **Xiaolong Zheng**, Jiliang Wang, Wei Dong, Yuan He, Yunhao Liu, “Survival of the Fittest: Data Dissemination with Selective Negotiation in Wireless Sensor Networks”, in *Proceedings of IEEE International Conference on Mobile Ad-Hoc and Sensor Systems (MASS)*, Hangzhou, China, Oct 2013.

## JOURNALS

- [1] **Xiaolong Zheng**, Jiliang Wang, Wei Dong, Yuan He, Yunhao Liu, “Bulk Data Dissemination in Wireless Sensor Networks: Analysis, Implications and Improvement”, *IEEE Transactions on Computers (TC)*, accepted to appear, Jun 2015.
- [2] **Xiaolong Zheng**, Meng Wan, “A Survey on Data Dissemination in Wireless Sensor Networks”, *Journal of Computer Science and Technology (JCST)*, vol. 29, no. 3, pp. 470–486, May 2014.
- [3] **Xiaolong Zheng**, Zhichao Cao, Jiliang Wang, Yuan He, Yunhao Liu, “Interference Resilient Duty Cycling for Sensor Networks under Co-existing Environments”, submitted to *IEEE Transactions on Wireless Communications*, Major Revision.
- [4] **Xiaolong Zheng**, Jiliang Wang, Longfei Shangguan, Zimu Zhou, Yunhao Liu, “Ubiquitous Smoking Detection with Commercial WiFi Infrastructures”, submitted to *IEEE Transactions on Mobile Computing*, Major Revision.
- [5] DaiboLiu, MengshuHou, Zhichao Cao, YuanHe, Xiaoyu Ji, **Xiaolong Zheng**, “Exploiting Concurrency for Low Power Opportunistic Forwarding”, submitted to *IEEE Transactions on Networking*, Major Revision.
- [6] Jumin Zhao, Shimin Huo, Dengao Li, **Xiaolong Zheng**, **Hongtao Zhu**, “WiGuard: Invisible Intruder Detection System Based on Identification of Anomaly Signal Sequences”, submitted to *IEEE Transactions on Instrumentation and Measurement*, Major Revision.

## PROJECTS

### GreenOrbs

Sep 2010- ongoing

- **Introduction:** GreenOrbs is an ongoing work on building a long-term wireless sensor network system to monitor the forest environment. On one hand, GreenOrbs realizes all-year ecological surveillance in the forest, collecting various sensory data including temperature, humidity, illumination, and carbon dioxide titer. On the other hand, GreenOrbs pioneers the effort in the sensor network community to build a practical system. Through the real-world experience in GreenOrbs, we expect to explore the potential design space and scientific solutions, especially addressing the research and engineering challenges for a wireless sensor network system that is deployed in the virgin forest, involves 1000+ sensor nodes, and needs to operate for over one year.
- **My major tasks:** *Protocol design and system measurement*

### CitySee

Apr 2011- ongoing

- **Introduction:** In April 2011, we launched the CitySee system as the extension of GreenOrbs into urban CO<sub>2</sub> monitoring area. The goal of CitySee is to deploy thousands of wireless sensor nodes in an urban area of Wuxi City, China, such that multi-dimensional data including CO<sub>2</sub>, temperature, humidity, light, location, and etc. could be collected in a real-time manner for further analysis.
- **My major tasks:** *Protocol design, system implementation and measurement*

## PROFESSIONAL SERVICES & ACTIVITIES

### Submission Chair:

- IEEE TrustCom 2014

### PC Member:

- ITC28 Area 1: “Smart Cities and IoT”, 2016

### Reviewer:

- Transactions on Networking (TON), IEEE Communications Magazine, Ad Hoc & Sensor Wireless Networks

### External Reviewer:

- Transactions on Mobile Computing (TMC), Transactions on Wireless Communications (TWC), Transactions on Parallel and Distributed Systems (TPDS), Ad Hoc Networks,
- MobiCom 2015, INFOCOM 2012–2016, ICDCS 2011–2015, RTSS 2012–2015, ICNP 2012–2015, MASS 2012–2015.