

# XIAOHUI LIU

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## Research Interests

Distributed wireless networking, sensor networking, and real-time networking

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## Education

2008–2014 **Wayne State University**, *Ph.D. in Computer Science*.

2004–2008 **Wuhan University, China**, *B.S. in Computer Science*.

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## Publications

### Journals

Hongwei Zhang, Xin Che, Xiaohui Liu, Xi Ju.

*Adaptive Instantiation of the Protocol Interference Model in Wireless Networked Sensing and Control.*

In ***ACM Transactions on Sensor Networks (ToSN)***, Volume 10 Issue 2, Article No. 28, January 2014.

Xiaohui Liu, Hongwei Zhang, Qiao Xiang, Xin Che, Xi Ju.

*Taming Uncertainties in Real-Time Routing for Wireless Networked Sensing and Control.*

In ***IEEE Transactions on Smart Grid (TSG)***, special issue on “Smart Grid Communication Systems: Reliability, Dependability, and Performance”, Vol. 4, No. 1, March 2013.

Qiao Xiang, Jinhong Xu, Xiaohui Liu, Hongwei Zhang, Loren J. Rittle.

*When In-Network Processing Meets Time: Complexity and Effects of Joint Optimization in Wireless Sensor Networks.*

In ***IEEE Transactions on Mobile Computing (TMC)***, 10(10), pp. 1488-1502, October 2011.

### Conferences & Workshops

Xiaohui Liu, Hongwei Zhang, Qiao Xiang, Xin Che, Xi Ju.

*Taming Uncertainties in Real-Time Routing for Wireless Networked Sensing and Control.*

In ***13th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)***, 2012.

Xiaohui Liu, Hongwei Zhang, Qiao Xiang.

*Towards Predictable Real-Time Routing for Wireless Networked Sensing and Control.*

In ***Cyber-Physical-Systems (CPS) Week Workshop on Real-Time Wireless for Industrial Applications (RealWin)***, 2011.

Xin Che, Xiaohui Liu, Xi Ju, Hongwei Zhang.

*Adaptive Instantiation of the Protocol Interference Model in Mission-Critical Wireless Networks.*

In **7th IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)**, 2010.

Qiao Xiang, Jinhong Xu, Xiaohui Liu, Hongwei Zhang, Loren J. Rittle.  
*When In-Network Processing Meets Time: Complexity and Effects of Joint Optimization in Wireless Sensor Networks.*

In **30th IEEE Real-Time Systems Symposium (RTSS)**, 2009.

#### Posters & Demos

Hongwei Zhang, Xiaohui Liu, Chuan Li, Yu Chen, Xin Che, Feng Lin, Le Yi Wang, George Yin.

*Poster Abstract: PRK-Based Scheduling for Predictable Link Reliability in Wireless Networked Sensing and Control.*

In **4th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)**, 2013

#### Technical Reports

H. Zhang, C. Li, X. Liu, Y. Chen, X. Che, F. Lin, L. Y. Wang, and G. Yin.

*PRK-based scheduling for predictable link reliability in wireless networked sensing and control.*

In **Technical Report DNC-TR-14-01, Wayne State University**, 2014.

H. Zhang, X. Che, X. Liu, and X. Ju.

*Adaptive instantiation of the protocol interference model in wireless networked sensing and control.*

In **Technical Report WSU-CS-DNC-TR-12-01, Wayne State University**, 2012.

X. Liu, H. Zhang, Q. Xiang, X. Che, and X. Ju.

*Taming uncertainties in real-time routing for wireless networked sensing and control.*

In **Technical Report DNC-TR-11-04, Wayne State University**, 2011

Q. Xiang, J. Xu, X. Liu, H. Zhang, and L. J. Rittle.

*When in-network processing meets time: Complexity and effects of joint optimization in wireless sensor networks.*

In **Technical Report DNC-TR-09-01, Wayne State University**, 2009.

#### Under Review

Hongwei Zhang, Xiaohui Liu, Chuan Li, Yu Chen, Xin Che, Feng Lin, Le Yi Wang, George Yin.

*PRK-Based Scheduling for Predictable Link Reliability in Wireless Networked Sensing and Control.*

In **IEEE/ACM International Symposium on Quality of Service (IWQoS)**, 2015.

Xiaohui Liu, Hongwei Zhang.

*A Maximal Concurrency and Low Latency Distributed Scheduling Protocol for Wireless Sensor Networks.*

In **International Journal of Distributed Sensor Networks**, 2015.

#### In Preparation

Xiaohui Liu, Hongwei Zhang.

*Real-Time Convergecast Scheduling in Lossy Multi-hop Wireless Sensor Networks.*

In *The IEEE Conference on Computer Communications (INFOCOM)*, 2016

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## Patent

Hongwei Zhang, Xiaohui Liu, Chuan Li, "PRK-Based Scheduling for Predictable Link Reliability", U.S. Provisional Application #61/788,445, International Application #PCT/US2014/27055

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## Awards

- 2012 **Outstanding Graduate Research Assistant (GRA) Award**, Wayne State University
- 2009 **Microsoft Imagine Cup US Software Design Top 15 Finalist** (out of about 2,000 teams)
- 2005 **National Scholarship**, China
- 2008, 2011, Graduate Research Travel Award, Department of Computer Science, Wayne State University
- 2012
- 2006 Second Prize of Mathematics Contest, Wuhan University, China
- 2005 Second Prize in 10th "Ziqiang Cup" Extracurricular Contest of Science and Academics, Wuhan University, China
- 2005, 2006 Second Class Academic Scholarship, Wuhan University, China
- 2007 Third Class Academic Scholarship, Wuhan University, China

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## Technical Skills

**Mathematical tools:** probability theory, statistics, Markov chain, Markov decision process, linear optimization, queueing theory, and control theory

**Wireless Standards:** 802.11 and 802.15.4

**Languages:** expert in C, TinyOS/nesc, and Matlab; proficient in C++ and L<sup>A</sup>T<sub>E</sub>X; prior experience in Python, Java, C#, Objective-C, ASP, PHP, Javascript, and HTML

**Databases:** MS SQL Server and MySQL

**Operating systems:** Linux, Mac OS X, and Windows

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## Experience

- 8/09 – 11/14 **Research Assistant**, Wayne State University, Michigan.
- 1/10 – 1/12 **President**, ACM Student Chapter at Wayne State University, Michigan.
- 8/08 – 8/09 **Teaching Assistant**, Wayne State University, Michigan.
- 12/07 – 3/08 **Software Engineer Intern**, Wicresoft Company, Shanghai, China.
- 9/06 – 11/07 **Chief Development Officer**, Trinity Studio, Wuhan, China.

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## Professional Activities

TPC Member

ICCCN'15

Referee

Journals: ToN, ToSN, TPDS, TC, IPL, IJDSN, TPDS, JPDC

Conferences: Sensys, MASS, SECON, WCNC, AHSN, ICCN, SAS, Globecom, SAC, ICC, MSWiM, NAS, CPNS, ADHOC, WMET, HiPC, QShine, TVT, MUE, WAVE

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## Reference

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### **Nathan Fisher.**

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### **Le Yi Wang.**

Professor

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