

Curriculum Vitae

Dr. Qiao Xiang

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Date of CV: February 2016

Education

- 2014 Ph.D. Wayne State University, Detroit, MI, Computer Science (advisor: Hongwei Zhang)
- 2011 M.S. Wayne State University, Detroit, MI, Computer Science (advisor: Hongwei Zhang)
- 2007 B.Eng Nankai University, Tianjin, China, Information Security (advisor: Xiaojie Yuan)
- 2007 B.Econ Nankai University, Tianjin, China, Economics (advisor: Jie Gao)

Training

- Aug 2012 Short Course on Parallel Programming, PAR Lab, University of California Berkeley

Work Experiences

- Nov 2015 – present. Postdoctoral Fellow, Department of Computer Science, Yale University, U.S.
- Jul – Oct 2015. Visiting Research Scientist, Department of Computer Science and Technology, Nankai University, China
- Apr 2014 – Apr 2015. Postdoctoral Fellow, School of Computer Science, McGill University, Canada
- May – Aug 2012. Research Intern, Computer Science Lab, Samsung Information Systems America, U.S.
- Sep – Nov 2006. Intern System Administrator, Center of Construction Information Technology, Tianjin Construction Administration Committee, China
- Jun – Sep 2006. Intern Software Engineer, Database System Lab, Nankai University, China

Research Interests

Software-Defined Networking, Wireless Cyber-Physical Systems, Vehicle Networks, Green Computing and Smart Grid, Cloud Computing, Operating Systems, Real-time Systems, Game Theory and Network Economics, Network Security, Database Systems

Technical Skills

Advanced Programming Language(e.g., C, C++), Operating System Development(e.g, Unix programming, L4-microkernel, network interface card driver), Distributed Network Protocol Development (e.g., TinyOS/nesc), Cloud-based File System Design (e.g., Amazon S3FS, FUSE), Simulation (e.g., MATLAB, ns-2), Website Design and Network Database System(e.g., MS SQL Server, MySQL, C#, JavaScript, ASP, PHP, HTML)

Publications

Book Chapter

- 2015 1. **Qiao Xiang**, Hongwei Zhang, In-Network Processing in Wireless Sensor Networks, *Handbook of Sensor Networking: Advanced Technologies and Applications*, Chapter 4, CRC Press

Journals

- 2016 4. Linghe Kong, **Qiao Xiang**, Xue Liu, Xiao-Yang Liu, Xiaofeng Gao, Guihai Chen, Min-You Wu, ICP: Instantaneous Clustering Protocol for Wireless Sensor Networks, *Computer Networks*, special issue on "Internet of Things", 2016
- 2013 3. Xiaohui Liu, Hongwei Zhang, **Qiao Xiang**, Xin Che, Xi Ju, Taming Uncertainties in Real-Time Routing for Wireless Networked Sensing and Control, *IEEE Transactions on Smart Grid (TSG)*, special issue on "Smart Grid Communication Systems", 4(1), pp. 288-301, March 2013
- 2011 2. **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, *IEEE Transaction of Mobile Computing (TMC)*, 10(10), pp. 1488-1502, October 2011

- 2006 1. Yang Wang, Bo Meng, **Qiao Xiang**, Comparison on Survival Analysis of Traumatic Brain Injury Patients Treated at Normal Temperature and Mild Hypothermia, *Chinese General Practice*, December 2006

Conferences and Workshops

- 2016 8. Xi Chen, Linghe Kong, Xue Liu, Lei Rao, Fan Bai, **Qiao Xiang**, How Cars Talk Louder, Clearer and Fairer: Optimizing the Communication Performance of Connected Vehicles via Online Synchronous Control, to appear in *the 35th Annual IEEE International Conference on Computer Communications (INFOCOM'16)*, Acceptance rate: 18.25% = 300/1644
- 2015 7. **Qiao Xiang**, Fanxin Kong, Xue Liu, Xi Chen, Linghe Kong, Lei Rao, Auc2Charge: An Online Auction Framework for Electric Vehicle Park-and-Charge, *the sixth International Conference on Future Energy Systems (ACM eEnergy'15)*, Acceptance rate: 22.8% = 16/70
6. **Qiao Xiang**, Hongwei Zhang, Jianping Wang, Guoliang Xing, Shan Lin, Xue Liu, On Optimal Diversity in Network-Coding-Based Routing in Wireless Networks, *the 34th Annual IEEE International Conference on Computer Communications (INFOCOM'15)*, Acceptance rate: 19% = 316/1640
5. **Qiao Xiang**, Xi Chen, Linghe Kong, Lei Rao, Xue Liu, Data Preference Matters: A New Perspective of Safety Data Dissemination in Vehicular Ad Hoc Networks, *the 34th Annual IEEE International Conference on Computer Communications (INFOCOM'15)* Acceptance rate: 19% = 316/1640
- 2012 4. **Qiao Xiang**, Hongwei Zhang, QoS-Aware In-Network Processing for Mission-Critical Wireless Cyber-Physical Systems, *Doctoral Colloquium on the 10th ACM Conference on Embedded Networked Sensor Systems (DC SenSys'12)*
3. Xiaohui Liu, Hongwei Zhang, **Qiao Xiang**, Xin Che, Xi Ju, Taming Uncertainties in Real-Time Routing for Wireless Networked Sensing and Control, *the 13th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc'12)*, Acceptance rate: 20% = 24/120
- 2011 2. Xiaohui Liu, Hongwei Zhang, **Qiao Xiang**, Towards Predictable Real-Time Routing for Wireless Networked Sensing and Control, *the Cyber-Physical-Systems (CPS) Week Workshop on Real-Time Wireless for Industrial Applications (RealWin'11)*
- 2009 1. **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, *the 30th IEEE Real-Time Systems Symposium (RTSS'09)*, Acceptance Rate: < 20%

Internet Draft

- 2015 1. Jungzhuo Wang, **Qiao Xiang**, ALTO Extension: Endpoint Cost Service for Flows, *Under review by IETF ALTO Working Group*

Dissertation, Thesis and Technical Report

- 2014 5. In-Network Processing for Mission-Critical Wireless Networked Sensing and Control: A Real-Time, Efficiency, and Resiliency Perspective *PhD Dissertation*, Wayne State University
- 2011 4. When In-Network Processing Meets Time: Complexity and Effects of Joint Optimization in Wireless Sensor Networks, *Master Thesis*, Wayne State University
- 2009 3. **Qiao Xiang**, QoS-Assured In-Network Processing in Wireless Cyber-Physical Systems: A Survey, *Technical Report, Dependable Networking and Computing Group*, Wayne State University
- 2007 2. Dynamic Node Labeling Schemes in Native XML Database, *Bachelor Thesis*, Nankai University
1. The Development and Role of Institutional economic in Modern China Economy, *Bachelor Thesis*, Nankai University

Papers Under Review

10. **Qiao Xiang**, Linghe Kong, Xue Liu, Yuwei Xu, Jingdong Xu, Auc2Reserve: A Differentially Private Auction for Electric Vehicle Fast Charging Reservation

9. **Qiao Xiang**, Fanxin Kong, Xi Chen, Lei Rao, Xue Liu, GreenBroker: Online Revenue Maximization for Electric Vehicle Park-and-Charge
8. **Qiao Xiang**, Hongwei Zhang, Jianping Wang, Guoliang Xing, Shan Lin, Xue Liu, Optimal Network-Coding-Based Routing in Wireless Networks: An Efficiency and Resiliency Approach
7. **Qiao Xiang**, Xi Chen, Linghe Kong, Lei Rao, Xue Liu, Exploring Data Preference for Safety Data Dissemination in Vehicular Ad Hoc Networks,
6. **Qiao Xiang**, Fanxin Kong, Xue Liu, Xi Chen, Linghe Kong, Lei Rao, Bid To Charge: Exploring Auction Design for Electric Vehicle Charging Stations
5. Kai Gao, **Qiao Xiang**, Chen Gu, Yang Richard Yang, Data-Dependent Control Plane Programming
4. Fanxin Kong, **Qiao Xiang**, Linghe Kong, Jing Chen, Xue Liu, On-Line Scheduling for Electric Vehicle Charging in Park and Charge Systems
3. Linghe Kong, Xi Chen, **Qiao Xiang**, Yi Gao, Xue Liu, Sensory Data Sharing in Collaborative Robots
2. Xi Chen, Lei Rao, **Qiao Xiang**, Xue Liu, Fan Bai, DRIVING: Delay-Aware Distributed Video Scheduling Framework for In-Cabin Wi-Fi Systems
1. Xingjian Lu, Fanxin Kong, Xue Liu, Jianwei Yin, **Qiao Xiang**, Huiqun Yu, Bulk Savings for Bulk Transfers: Minimizing Energy Cost on Inter-Data-Center Traffic

Working Papers

3. **Qiao Xiang**, Yang Richard Yang, Linghe Kong, Software Defined Networking in Intelligent Transportation Systems
2. **Qiao Xiang**, Xue Liu, Linghe Kong, Data Management in Smart Energy Systems: A Survey
1. Kai Gao, Xin Wang, **Qiao Xiang**, Yang Richard Yang. Minimal Routing State Abstraction for Software Defined Networking

Invited Talks

- 2015 Aug. Emerging Topics in Wireless Networking, Nankai University, Tianjin, China
- 2015 May. Designing Real-Time, Reliable and Efficient Cyber-Physical Systems for Future Smart City, MIT, Massachusetts, US
- 2015 Apr. Towards Real-time, Reliable and Efficient Service in Wireless Cyber-Physical Systems, McDaniel College, Maryland, US
- 2014 Dec. In-Network Processing in Wireless Cyber-Physical Systems, China University of Petroleum, Beijing, China
- 2014 Dec. In-Network Processing in Wireless Control Systems: Experience and Case Studies, Nankai University, Tianjin, China

Systems

- 2016 FAST: Data Dependent Control Plane Programming Framework, team lead, Yale University,
- 2015 ALTO: Application Layer Traffic Optimization, team member, Yale University,
- 2015 Maple: Algorithmic Policy Based SDN Programming Model, team member, Yale University,
- 2015 VSmart: a smart vehicle testbed, team member, McGill University,
<https://cpslab.cs.mcgill.ca/projects/vsmart/>
- 2012 OmniOS: Scalable Microkernel Manycore Operating Systems, team member, Samsung Information Systems America (SISA)
- 2012 Apr. Enabling Encryption/Decryption on the User-End of Amazon S3FS, team leader, Wayne State University,
- 2009 NetEye: Networked Embedded Sensing Testbed, team member, Wayne State University,
<http://neteye.cs.wayne.edu/>

Demos

- 2015 VSMart testbed demonstration for academic and industrial visitors, team member of CPS Lab, McGill University

- 2013 Jul. WiMAX Open XC (Prototyping in Metro Detroit) demo for the 17th GENI Engineering Conference, GENI Wayne State University Team member, Wayne State University
- 2012 Mar. Advanced sensing demo for Detroit future technology magazine, Wayne State University
- 2011 Sep. NetEye sensor testbed demo for university undergraduate recruitment, Wayne State University,
- 2011 Mar. Sensor network research demo for university graduate recruitment, Wayne State University
- 2008 Aug. NetEye sensor testbed prototype demo for Ford Research Center, Wayne State University,

Technical Program Committees

International Conference on emerging Networking EXperiments and Technologies(CoNEXT 2015), shadow TPC

Euromicro Conference on Digital System Design(DSD 2015-2016)

IEEE International Conference on Computer Communications and Networks(ICCCN 2015)

IEEE International Instrumentation and Measurement Technology Conference(I2MTC 2012-2016)

IEEE Sensors Applications Symposium(SAS 2013-2016)

International Conference on Network-Based Information Systems(NBiS 2015)

International Conference on Smart Sensors and Application (ICSSA 2015)

Referee activities

Journals refereed

ACM Transactions on Autonomous and Adaptive Systems(TAAS), ACM Transactions on Sensor Networks(TOSN), Ad Hoc & Sensor Wireless Networks(AHSWN), Elsevier Ad Hoc Networks(ADHOC), Elsevier Computer Networks(COMNET), EURASIP Journal on Embedded Systems(JES), IEEE/ACM Transactions on Networking(TON), IEEE Communications Surveys & Tutorials(COMST), IEEE Transactions on Industrial Electronics(TIE), IEEE Transactions on Mobile Computing(TMC), IEEE Transactions on Parallel and Distributed Systems(TPDS), IEEE Transactions on Vehicular Technology(TVT), International Journal of Sensor Networks(IJSNET), Journal of Aerospace Computing, Information, and Communication(JAIS), Journal of High Speed Networks(JHSN), The Computer Journal(Comput. J.)

Conferences refereed

ACM Symposium on Applied Computing(SAC), FTRA International Conference on Multimedia and Ubiquitous Engineering(MUE), IEEE/ACM International Symposium on Quality of Service(IWQoS), IEEE Global Communications Conference(GLOBECOM), IEEE International Conference on Communications(ICC), IEEE International Conference on Computer Communications(INFOCOM), IEEE International Conference on Computer Communications and Networks(ICCCN), IEEE International Conference on Distributed Computing Systems(ICDCS), IEEE International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness(QShine), IEEE International Conference on High Performance Computing(HiPC), IEEE International Conference on Mobile Ad-hoc and Sensor Systems(MASS), IEEE International Conference on Networking, Architecture, and Storage(NAS), IEEE International Conference on Sensing, Communication, and Networking(SECON), IEEE International Workshop on Cyber-Physical Networking Systems(CPNS), IEEE International Workshop on Generation C Wireless Networks(GenCWiNets), IEEE Real-Time Systems Symposium(RTSS), IEEE SENSORS, IEEE Sensors Applications Symposium(SAS), International ICST Conference on Broadband Communications, Networks, and Systems(BROADNETS), International ICST Conference on Scalable Information Systems(InfoScale), International Symposium on Reliable Distributed Systems(SRDS)

Teaching activities

Course assisted at Yale University

2016 Spring Teaching Fellow: Computer Networks

Courses taught/assisted at Wayne State University

2007 – 2013 Lecturers: Introduction to Computer Science, Computer Operating Systems-Lab and Computer Architecture and Organization-Lab

- 2009 – 2013 Teaching Assistant for graduate courses: Network, Distributed and Concurrent Programming, Theory of Languages and Automata, Data Communication and Computer Networks, Advanced Computer Networking and Seminar in Networking, Distributed Systems and Parallel Systems
- 2009 – 2012 Teaching Assistant for undergraduate courses: Algorithm Design and Analysis, Introduction to Theoretical Computer Science, Computer Operating Systems and Introduction to Computer Networking

Courses taught at Nankai University

- 2006 Fall Lecturers: Database Systems-Lab and MFC programming-Lab

Teaching awards

- 2012 – 2013 Outstanding Teaching Award, College of Engineering, Wayne State University

Scientific/Academic honors

- 2016 – 2017 Postdoctoral Fellowship, Yale University
- 2014 – 2015 Postdoctoral Fellowship, McGill University
- 2009 – 2013 Graduate Teaching Assistantship, Wayne State University
- 2008 – 2009 Graduate Research Assistantship, Wayne State University
- 2007 – 2008 Graduate Teaching Assistantship, Wayne State University
- 2005 – 2007 Outstanding Student Scholarship, Nankai University
- 2006 First prize in the Entrepreneur Tournament Challenge Cup, Tianjin Medical University
- 2003 – 2004 Outstanding Student Scholarship, Nankai University

Non-academic awards

- 2009 – 2012 2nd place in annual Chinese amateur basketball tournament, Michigan (National American Chinese Sports Association)
- 2002 First Prize for High School Olympic Chemistry Tournament, Tianjin, China
- 2001 Second Prize for High School Olympic Biology Tournament, Tianjin, China
- 1996 Certified Level-8 Amateur Piano Player, Tianjin College of Music, China

Hobbies

Piano, basketball and reading

References

Yang Richard Yang, Professor
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