

Curriculum Vitae

Qixin Wang
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General Information

Name:	Qixin Wang		
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Position:	Associate Professor, Department of Computing, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong SAR		
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Education

Degree Obtained	Institution	Location	Specialty	From	To
Doctor of Philosophy	Dept. of Computer Science, University of Illinois at Urbana-Champaign	Urbana, IL 61801, USA	Computer Science	08/2001	07/2008
Master of Engineering	Tsinghua University	Beijing, China	Computer Architecture	09/1999	06/2001
Bachelor of Engineering	Tsinghua University	Beijing, China	Computer Science and Technology	09/1994	07/1999
Bachelor of Economics (Minor)	Tsinghua University	Beijing, China	Enterprise Management	09/1997	07/1999

Work

Position	Institution	Location	From	To
Associate Professor	Dept. of Computing, The Hong Kong Polytechnic University	Hung Hom, Kowloon, HONG KONG	July 1, 2015	Now
Assistant Professor	Dept. of Computing, The Hong Kong Polytechnic University	Hung Hom, Kowloon, HONG KONG	Jan 2, 2009	Jun 30, 2015
Postdoctoral Research Associate	Dept. of Computer Science, University of Illinois at Urbana-Champaign	Urbana, IL, 61801, USA	Sep, 2008	Dec, 2008

In the following, “HKPolyU” refers to The Hong Kong Polytechnic University, “COMP” refers to the Department of Computing of HKPolyU.

Research

Publication List¹

Refereed Journal Publications

1. [TMC25] Xueli Fan, Jieming Chen, **Qixin Wang***, and Edward Chung, “A CAV Cooperative Lane Change Protocol with CTH Safety Guarantee on Dedicated Highways,” (accepted for publication) in *IEEE Transactions on Mobile Computing*, doi: 10.1109/TMC.2025.3558922.
2. [TNNLS25] Yanbing Mao, Yuliang Gu, **Lui Sha**, Huajie Shao, **Qixin Wang**, Tarek Abdelzaher, “Phy-Taylor: Partially Physics-Knowledge-Enhanced Deep Neural Networks via NN Editing,” in *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 36(1):447-461, Jan, 2025.
3. [TCPS23] Xueli Fan, **Qixin Wang***, Jie Liu, “A Reliable Wireless Protocol for Highway and Metered-Ramp CAV Collaborative Merging with Constant-Time-Headway Safety Guarantee,” in *ACM Transactions on Cyber-Physical Systems (TCPS)*, 7(4):Article23:1-26, October 14, 2023.
4. [TSE23] Liushan Chen, Yu Pei, Minxue Pan, Tian Zhang, **Qixin Wang**, Carlo Alberto Furia, “Program Repair with Repeated Learning,” in *IEEE Transactions on Software Engineering (TSE)*, 49(2):831-848, Feb. 1, 2023.
5. [TCAD20] Lei Bu, **Qixin Wang**, Xinyue Ren, Shaopeng Xing, Xuandong Li, “Scenario-Based Online Reachability Validation for CPS Fault Prediction,” in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 39(10):2081-2094, Oct., 2020.
6. [JAS20] Ameer Hamza Khan, Zili Shao, Shuai Li, **Qixin Wang**, Nan Guan, “Which is the Best PID Variant for Pneumatic Soft Robots? An Experimental Study,” in *IEEE/CAA Journal of Automatica Sinica*, 7(2):451-460, March, 2020.
7. [TODAES19] Shaheer Muhammad, M. Usman Rafique, Shuai Li, Zili Shao, **Qixin Wang**, Xue Liu, “Reconfigurable Battery Systems: A Survey on Hardware Architecture and Research Challenges,” in *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, 24(2):19:1-27, March, 2019.
8. [TCPS19] Feng Tan, Liansheng Liu, Stefan Winter, **Qixin Wang***, Neeraj Suri, Lei Bu, Yu Peng, Xue Liu, Xiyuan Peng, “Cross-Domain Noise Impact Evaluation for Black Box Two-Level Control CPS,” in *ACM Transactions on Cyber-Physical Systems (TCPS)*, 3(1):2:1-25, January, 2019.

¹ Notation Conventions:

- **[Bold Paper ID]**: paper with me as the first author, co-first author, or led by me.
- Regular Author Name: HKPolyU research personnel/students not supervised by me.
- Underlined Author Name: HKPolyU research personnel/students supervised by me.
- **Bold Author Name**: other HKPolyU members, typically, HKPolyU faculty staff.
- **Bold Underlined Author Name**: myself.
- *Italic Author Name*: external co-authors (co-authors affiliated with institutes other than HKPolyU).
- Italic Underlined Author Name: external co-authors (co-authors affiliated with institutes other than HKPolyU) supervised/directed by me.
- **Bold Italic Author Name**: my former academic advisors.
- *: corresponding author(s).

9. [TII17] Shaheer Muhammad, Muhammad Usman Rafique, **Shuai Li, Zili Shao, Qixin Wang, Nan Guan**, “A Robust Algorithm for State-of-Charge Estimation With Gain Optimization,” in *IEEE Transactions on Industrial Informatics*, 13(6):2983-2994, December, 2017.
10. [TECS17] Zhaoyan Shen, **Zhijian He, Shuai Li, Qixin Wang, Zili Shao**, “A Multi-Quadcopter Cooperative Cyber-Physical System for Timely Air Pollution Localization,” in *ACM Transactions on Embedded Computing Systems (TECS)*, 16(3):70:1-23, April, 2017.
11. [TCAD16] Muhammad Umer Khan, **Shuai Li, Qixin Wang, Zili Shao**, “CPS Oriented Control Design for Networked Surveillance Robots with Multiple Physical Constraints,” in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 35(5):778-791, May, 2016.
12. [TMC16] **Guanbo Zheng, Cunqing Hua, Rong Zheng, and Qixin Wang**, “Toward Robust Relay Placement in 60GHz mmWave Wireless Personal Area Networks with Directional Antenna,” in *IEEE Transactions on Mobile Computing (TMC)*, 15(3):762-773, March, 2016.
13. [JIRS16] Muhammad Umer Khan, **Shuai Li, Qixin Wang, Zili Shao**, “Formation Control and Tracking for Co-operative Robots with Non-holonomic Constraints,” in *Journal of Intelligent and Robotic Systems*, 82(1):163-174, Feb 29, 2016.
14. [TMSCS16] Yi Wang, Zhiwei Qin, Renhai Chen, **Zili Shao, Qixin Wang, Shuai Li, and Laurence T. Yang**, “A Real-Time Flash Translation Layer for NAND Flash Memory Storage Systems,” in *IEEE Transactions on Multi-Scale Computing Systems*, 2(1):17-29, January-March, 2016.
15. [TPDS15] **Feng Tan, Yufei Wang, Qixin Wang*, Lei Bu, Neeraj Suri**, “A Lease based Hybrid Design Pattern for Proper-Temporal-Embedding of Wireless CPS Interlocking,” in *IEEE Transactions on Parallel and Distributed Systems*, 26(10):2630-2642, Oct., 2015.
16. [COMP15] **Kyungtae Kang, Qixin Wang, Junbeom Hur, Kyung-Joon Park, and Lui Sha**, “Medical-Grade Quality of Service for Real-Time Mobile Healthcare,” in *IEEE Computer*, 48(2):41-49, Feb., 2015.
17. [TMC14] **Yufei Wang, Qixin Wang, Guanbo Zheng, Zheng Zeng, Rong Zheng, Qian Zhang**, “WiCop: Engineering WiFi Temporal White-Spaces for Safe Operations of Wireless Personal Area Networks in Medical Applications,” in *IEEE Transactions on Mobile Computing*, 13(5):1145-1158, May, 2014.
18. [COMNET14] **Yufei Wang, Rong Zheng, Qixin Wang**, “Self-tuned distributed monitoring of multi-channel wireless networks using Gibbs sampler,” in *Computer Networks, Elsevier*, 64:261-272, May 8, 2014.
19. [TPDS14] **Tao Li, Feng Tan, Qixin Wang*, Lei Bu*, Jian-Nong Cao, Xue Liu**, “From Offline toward Real Time: A Hybrid Systems Model Checking and CPS Codesign Approach for Medical Device Plug-and-Play Collaborations,” in *IEEE Transactions on Parallel and Distributed Systems*, 25(3):642-652, March, 2014.
20. [RTS13] **Kyungtae Kang, Kyung-Joon Park, Lui Sha, and Qixin Wang**, “Design of a Crossbar VoQ Real-Time Switch with Clock-Driven Scheduling for a Guaranteed Delay Bound,” in *Real-Time Systems*, 49(1):117-135, Jan., 2013.
21. [TII10] **Qixin Wang, Sathish Gopalakrishnan**, “Adapting a Main-Stream Internet Switch Architecture for Multihop Real-Time Industrial Networks,” in *IEEE Transactions on Industrial Informatics*, vol. 6, no. 3, pp. 393-404, Aug., 2010.
22. [TII08] **Xue Liu, Qixin Wang, Sathish Gopalakrishnan, Wenbo He, Lui Sha, Hui Ding, and Kihwal Lee**, “ORTEGA: An Efficient and Flexible Online Fault Tolerance

Architecture for Real-Time Control Systems,” in *IEEE Transactions on Industrial Informatics*, vol. 4, no. 4, pp. 213-224, Nov., 2008.

IEEE Transactions on Industrial Informatics 2008 Best Paper Award.

23. [TMC08] **Qixin Wang**, Rong Zheng, Ajay Tirumala, Xue Liu, and **Lui Sha**, “Lightning: A Hard Real-Time, Fast, and Lightweight Low-End Wireless Sensor Election Protocol for Acoustic Event Localization,” in *IEEE Transactions on Mobile Computing*, vol. 7, no. 5, pp. 570-584, May, 2008.

Selected as the Featured Article for TMC 2008 May Issue.

24. [TMC07] **Qixin Wang**, Xue Liu, Weiqun Chen, **Lui Sha**, and Marco Caccamo, “Building Robust Wireless LAN for Industrial Control with the DSSS-CDMA Cell Phone Network Paradigm,” in *IEEE Transactions on Mobile Computing*, vol. 6, no. 6, pp. 706-719, June, 2007.
25. [TOSN06] Xue Liu, **Qixin Wang**, Wenbo He, Marco Caccamo, and **Lui Sha**, “Optimal Real-Time Sampling Rate Assignment for Wireless Sensor Networks,” in *ACM Transactions on Sensor Networks*, vol.2, issue 2, pp. 263-295, May, 2006.

Refereed Conference Publications

26. [ICSE25] Shiyu Zhang, Haoyang Song, **Qixin Wang***, Henghua Shen, Yu Pei, “A Test Oracle for Reinforcement Learning Software based on Lyapunov Stability Control Theory,” in *Proc. of the 47th IEEE/ACM International Conference on Software Engineering (ICSE)*, Ottawa, Canada, April 30 – May 2, 2025.
IEEE/ACM ICSE 2025 Distinguished Paper Award.
27. [SIES24] Yao Chen, Xueli Fan, **Qixin Wang***, Nan Guan, Shuai Li, Zili Shao, “Enabling Online Fault Prediction in Adaptive Control: A Model Checker and Controller Co-Designed CPS Solution,” (invited paper) in *Proc. of the 14th IEEE International Symposium on Industrial Embedded Systems (SIES'24)*, pp. 85-92, Oct. 23-25, 2024, Chengdu, China.
28. [RTCSA23] Shiyu Zhang, Wenxia Liu, **Qixin Wang***, Lei Bu, Yu Pei, “A Comparison of Transformer and AR-SI Oracle For Control-CPS Software Fault Localization,” in *Proc. of the 29th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA'23)*, pp.95-100, Aug 30-Sep 1, 2023.
29. [ICSE19] Zhijian He, Yao Chen, Enyan Huang, **Qixin Wang***, Yu Pei*, and Haidong Yuan, “A System Identification based Oracle for Control-CPS Software Fault Localization,” in the *Proc. of the 41st ACM/IEEE International Conference on Software Engineering (ICSE)*, pp.116-127, Montreal, Canada, May 25-31, 2019.
30. [DATE19] Lei Bu, Shaopeng Xing, Xinyue Ren, Yang Yang, **Qixin Wang**, and Xuandong Li, “Incremental Online Verification of Dynamic Cyber-Physical Systems,” in *Proc. of the Design, Automation and Test in Europe Conference & Exhibition (DATE)*, March, 2019.
31. [RTCSA17] Shaheer Muhammad, Nan Guan, Shuai Li, **Qixin Wang**, Zili Shao, “Efficient and Balanced Charging of Reconfigurable Battery with Variable Power Supply,” in *Proc. of the 23rd IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, August 16-18, 2017.
32. [MSN15] Zhijian He, Yanming Chen, Zhaoyan Shen, Enyan Huang, Shuai Li, Zili Shao, **Qixin Wang**, “Ard-mu-copter: A Simple Open Source Quadcopter Platform,” in *Proc. of the 11th IEEE International Conference on Mobile Ad-hoc and Sensor Networks (MSN)*, pp.158-164, Shenzhen, China, Dec. 16-18, 2015.
33. [RTSS15] Aiping Tan, **Qixin Wang**, Nan Guan, Qingxu Deng, Xiaobo Sharon Hu, “Inter-Cell Channel Time-Slot Scheduling for Multichannel Multiradio Cellular

- Fieldbuses,” in *Proc. of the 36th IEEE Real-Time Systems Symposium (RTSS'15)*, pp.227-238, San Antonio, TX, Dec. 1-4, 2015.
34. [DSN13] Feng Tan, Yufei Wang, **Qixin Wang**, Lei Bu, Rong Zheng, and Neeraj Suri, “Guaranteeing Proper-Temporal-Embedding Safety Rules in Wireless CPS: A Hybrid Formal Modeling Approach,” in *Proc. of the 43rd IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, pp. 1-12 (note DSN proceedings are electronic and all papers are assigned the same page number: 1-12), Budapest, Hungary, June 24-27, 2013.
 35. [RTSS12] **Qixin Wang**, Yufei Wang, Rong Zheng, Xue Liu, “Curbing Aggregate Member Flow Burstiness to Bound End-to-End Delay in Networks of TDMA Crossbar Real-Time Switches,” in *Proc. of the 33rd IEEE Real Time Systems Symposium (RTSS'12)*, pp.14-25, San Juan, Puerto Rico, Dec 5 - 7, 2012.
 36. [ICCPs12] Tao Li, Feng Tan, **Qixin Wang**, Lei Bu, **Jian-nong Cao**, Xue Liu, “From Off-line toward Real-Time: A Hybrid Systems Model Checking and CPS Co-Design Approach for Medical Device Plug-and-Play (MDPnP),” in *Proc. of the IEEE/ACM 3rd International Conference on Cyber-Physical Systems (ICCPs'12)*, pp.13-22, Beijing, China, April 17-19, 2012.
 37. [INFOCOM12] Lei Rao, **Qixin Wang**, Xue Liu, Yufei Wang, “Analysis of TDMA Crossbar Real-Time Switch Design for AFDX Networks,” in *Proc. of the 31st IEEE International Conference on Computer Communications (IEEE INFOCOM 2012)*, pp.2462-2470, Orlando, USA, March 25-30, 2012.
 38. [RTSS11] Yufei Wang, **Qixin Wang**, Zheng Zeng, Guanbo Zheng, and Rong Zheng, “WiCop: Engineering WiFi Temporal White-Spaces for Safe Operations of Wireless Body Area Networks in Medical Applications,” in *Proceedings of the 32nd IEEE Real-Time Systems Symposium (RTSS'11)*, pp. 170-179, Vienna, Austria, Nov 29-Dec 2, 2011.
 39. [INFOCOM11] Lixiong Chen, Xue Liu, **Qixin Wang**, Yufei Wang, “A Real-Time Multicast Routing Scheme for Multi-Hop Switched Fieldbuses,” in *Proc. of the 30th IEEE International Conference on Computer Communications (IEEE INFOCOM 2011)*, pp.3209-3217, Shanghai, China, April 10-15, 2011.
 40. [ECRTS08] Xue Liu, Hui Ding, Kihwal Lee, **Qixin Wang**, and **Lui Sha**, “ORTEGA: An Efficient and Flexible Software Fault Tolerance Architecture for Real-Time Control Systems,” in *Proceedings of the 20th Euromicro Conference on Real-Time Systems (ECRTS 2008)*, pp.125-134, Prague, Czech, July 2-4, 2008.
 41. [RTAS08] **Qixin Wang**, Sathish Gopalakrishnan, Xue Liu, and **Lui Sha**, “A Switch Design for Real-Time Industrial Networks,” in *Proceedings of the 14th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS 2008)*, pp. 367-376, St. Louis, Missouri, Apr. 22-24, 2008.
 42. [RTSS07] **Qixin Wang**, Xue Liu, Jennifer Hou, and **Lui Sha**, “GD-Aggregate: A WAN Virtual Topology Building Tool for Hard Real-Time and Embedded Applications,” in *Proceedings of the 28th IEEE Real-Time Systems Symposium (RTSS 2007)*, pp. 379-388, Tucson, Arizona, Dec. 3-6, 2007.
 43. [RTSS05] **Qixin Wang**, Xue Liu, Wei-qun Chen, Wenbo He, and Marco Caccamo, “Building Robust Wireless LAN for Industrial Control with DSSS-CDMA Cellphone Network Paradigm,” in *Proceedings of the 26th IEEE International Real-Time Systems Symposium (RTSS 2005)*, pp. 3-14, Miami, Florida, Dec. 5-8, 2005.
 44. [RTSS04] **Qixin Wang**, Rong Zheng, Ajay Tirumala, Xue Liu, and **Lui Sha**, “Lightning: A Fast and Lightweight Acoustic Localization Protocol Using Low-End Wireless Micro-Sensors,” in *Proceedings of the 25th IEEE International Real-Time Systems Symposium (RTSS 2004)*, pp. 371-381, Lisbon, Portugal, Dec. 5-8, 2004.

45. [RTSS03] *Xue Liu, **Qixin Wang**, **Lui Sha**, and Wenbo He*, “Optimal QoS Sampling Frequency Assignment for Real-Time Wireless Sensor Networks,” in *Proceedings of the 24th IEEE International Real-Time Systems Symposium (RTSS 2003)*, pp. 308-319, Cancun, Mexico, Dec. 3-5, 2003.

Refereed Workshop Publications

46. [ICCPSS20] *Xueli Fan, **Qixin Wang****, Jie Liu, “Work-in-Progress Abstract: A Reliable Wireless Smart Vehicle Highway On-Ramp Merging Protocol with Constant Time Headway Safety Guarantee,” in *Proc. of the 11th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPSS'20) Work-in-Progress Session*, pp.184-185, Sydney, Australia, April, 2020.
47. [ICCPSS18] *Jiajun Shen, Xueli Fan, **Qixin Wang***, “Underwater AUV Localization With Refraction Consideration: WiP Abstract,” in *Proc. of the 9th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPSS 2018) Work-in-Progress Abstract*, Porto, Portugal: April 11-13, 2018.
48. [ICCPSS15] *Zhijian He, Shuai Li, Zhaoyan Shen, Muhammad Umer Khan, **Zili Shao**, **Qixin Wang***, “A Quadcopter Swarm for Active Monitoring of Smog Propagation,” in *Proc. of the 6th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPSS 2015) Work-in-Progress Abstract*, Seattle, WA, USA: April 14-16, 2015.
49. [ICCPSS14] *Feng Tan, Liansheng Liu, Stefan Winter, **Qixin Wang**, Neeraj Suri, Lei Bu, Yu Peng, Xue Liu, Xiyuan Peng*, “WiP Abstract: A Framework on Profiling Cross-domain Noise Propagation in Control CPS,” in *Proc. of the 5th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPSS 2014) Work-in-Progress Abstract*, Berlin, Germany: pp. 224, April 14-17, 2014.
50. [ICCPSS11] *Lei Bu, **Qixin Wang**, Xin Chen, Linzhang Wang, Tian Zhang, Jianhua Zhao, Xuandong Li*, “Toward online hybrid systems model checking of cyber-physical systems’ time-bounded short-run behavior,” in *ACM SIGBED Review – Work-in-Progress (WiP) Session of the 2nd International Conference on Cyber Physical Systems*, 8(2):7-10, June, 2011.
51. [IPSN03] ***Qixin Wang**, Wei-Peng Chen, Rong Zheng, Kihwal Lee, and **Lui Sha***. “Acoustic Target Tracking Using Tiny Wireless Sensor Devices,” in *Information Processing in Sensor Networks: Second International Workshop (IPSN 2003)*, Poster Session, Lecture Notes in Computer Science 2634, Palo Alto, CA, USA: Springer, pp. 642-657, April 22-23, 2003.

Publications related to Invited Talks (Keynotes, Tutorials etc.)

52. [SUTC08] ***Lui Sha**, Sathish Gopalakrishnan, Xue Liu, **Qixin Wang***, “Cyber-Physical Systems: A New Frontier,” Invited Keynote in *IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC 2008)*, pp. 1-9, Taichung, Taiwan, June 11-13, 2008.

Invited Papers

53. [ASP-DAC16] *Sebastian Steinhorst, **Zili Shao**, Samarjit Chakraborty, Matthias Kauer, Shuai Li, Martin Lukasiewicz, Swaminathan Narayanaswamy, Muhammad Usman Rafique, **Qixin Wang***, “Distributed Reconfigurable Battery System Management Architectures,” in *Proc. of the 21st Asia and South Pacific Design Automation Conference*, pp. 429-434, 2016.
54. [CCCCF13] ***Qixin Wang***, “CPS Application Case Studies/CPS Yan Jiu An Li Fen Xi,” in *Communications of the CCF/Zhong Guo Ji Suan Ji Xie Hui Tong Xun*, v9, n7, pp. 28-34, July, 2013. Language: Chinese.
55. [ICSMC06] ***Qixin Wang**, Wook Shin, Xue Liu, Zheng Zeng, Cham Oh, Bedoor K. Alshebli, Marco Caccamo, Carl A. Gunter, Elsa Gunter, Jennifer Hou, Karrie*

Karahalios, and **Lui Sha**, “I-Living: An Open System Architecture for Assisted Living,” (refereed invited paper) in *Proc. of IEEE International Conference on Systems, Man, and Cybernetics (ICSMC'06)*, vol. 5, pp. 4268-4275, Taipei, Oct. 8-11, 2006.

Invited Book Chapters

56. [MLCT09] **Lui Sha**, *Sathish Gopalakrishnan*, *Xue Liu*, and **Qixin Wang**, “Chapter 1, Cyber-Physical Systems: A New Frontier,” in *Machine Learning in Cyber Trust: Security, Privacy, and Reliability*, Edited by Jeffrey J. P. Tsai and Philip S. Yu, Springer, pp. 3-13, Jan. 1, 2009.

Editorials

57. [RTS22] *Albert Cheng*, **Qixin Wang**, “Editorial: Special Issue on Advances in Scheduling Resource Partitions and Real-time Computer Vision,” in *Real-Time Systems*, Springer, 58:399-400, Dec., 2022.
58. [TETT19] *Kyung-Joon Park*, *Kyungtae Kang*, **Qixin Wang**, *Dongeun Lee*, “Editorial: Real-Time Internet of Things and Cyber-Physical Systems,” in *Transactions on Emerging Telecommunications Technologies*, Wiley, 30(4), April 2, 2019.
59. [MIS16] *Kyungtae Kang*, *Kyung-Joon Park*, **Qixin Wang**, *Wenyao Xu*, “Editorial: Advanced Technologies for Mobile IoT and Cyber-Physical Systems,” in *Mobile Information Systems*, Hindawi, v2016, article 7968707:1-3, August, 2016.
60. [ChinaCom15] *Wen Chen*, *Benoit Geller*, *Fengye Hu*, *Ting Jiang*, **Qixin Wang**, “Guest Editorial: Wireless Body-Area Networks,” in *China Communications*, IEEE, 12(2):ii-iv, Feb, 2015.

Patents

China Patent

1. **WANG, Qixin**; **HUANG, Xinyan**; **SHAHEER, Mumammad**; **MOHAMMAD, Tamzid**; **ZHANG, Xiaoning**; **LUO, Mingchun**; **HSU, Li-Ta**; **WU, Xiqiang**; **XIAO, Fu**; **USMANI, Asif**, “Indoor Fire Monitoring Based on Look-Up-From-Floor Sensing of Ceiling,” China Patent No.: ZL 2022110062136, Date of Patent: May 3, 2024, Patent publication No.: CN 115909638 B
王启新; **黄鑫炎**; **M. 沙希尔**; **T. 穆罕默德**; **张小宁**; **罗明纯**; **许立达**; **吴西强**; **肖赋**; **A • 乌斯马尼**: “基于对天花板的从地板向上查看感测的室内火灾监测,” 中国专利号: ZL 2022 1 1006213.6, 授权公告日: 2024 年 05 月 03 日, 授权公告号: CN 115909638 B
2. **Huang, Xinyan**; **Zhang, Tianhang**; **Wu, Xiqiang**; **Xiao, Fu**; **Wang, Qixin**; **Usmani, Asif Sohail**; “A System, Device and Method to Collect the Real-time 3D Data from the Fire Scene,” China Patent No.: ZL 2020115986305, Date of patent: March 22, 2024, Patent publication No.: CN 114689111 B
黄鑫炎; **张天航**; **吴西强**; **肖赋**; **王启新**; **A. S. 乌斯马尼**: “三维火场信息的实时采集系统、实时采集设备和实时采集方法,” 中国专利号: ZL 2020 1 1598630.5, 授权公告日: 2024 年 03 月 22 日, 授权公告号: CN 114689111 B
3. **Wang, Qixin**; **Wang, Zhu**; “Client-Server Architecture for Multicore Computer System to Realize Single-Core-Equivalent View,” China Patent No.: ZL 201980043584.1, Date of patent: March 18, 2022, Patent publication No.: CN 112352225 B

王启新；王铸：“用于实现单核等效观感的多核计算机系统的客户端-服务器架构，” 中国专利号：ZL 2019 8 0043584.1，授权公告日期：2022 年 03 月 18 日，授权公告号：CN 112352225 B

US Patent

4. **Qixin Wang, Xinyan Huang, Muhammad Shaheer, Tamzid Mohammad, Xiaoning Zhang, Mingchun Luo, Li-Ta Hsu, Xiqiang Wu, Fu Xiao, Asif Usmani**, “Indoor Fire Monitoring Based on Look-Up-From-Floor Sensing of Ceiling,” US Patent No.: US 11,860,043 B2, Date of Patent: January 2, 2024.
5. **Qixin Wang, Zhu Wang**, “Client-Server Architecture for Multicore Computer System to Realize Single-Core-Equivalent View,” US Patent No.: US 10,642,657 B2, Date of Patent: May 5, 2020.
6. **Qixin Wang, Serbulent Tozlu**, “Method of Parallel Wireless Communication,” US Patent No.: US 8,270,288 B2, Date of Patent: Sep. 18, 2012.

Professional Recognition, Academic Awards and Honors

1. Distinguished Paper Award, The IEEE/ACM International Conference on Software Engineering (ICSE), 2025.
2. 2008 Best Paper Award, IEEE Transactions on Industrial Informatics (TII), award presented on November 4, 2009.
3. Featured Article, IEEE Transactions on Mobile Computing (TMC), May Issue, 2008.

Invited Talk, Tutorial, Keynotes

1. Qixin Wang, “Software Engineering Issues in Cyber-Physical Systems,” IEEE SA Symposium on Autonomous Driving, Shenzhen, China, Dec 16, 2023.
2. Qixin Wang, “Software Engineering Issues in Cyber-Physical Systems,” Global Open-Source Innovation Meetup (GOSIM) Workshop 2023, Shanghai, China, Sep 23-24, 2023.
3. Qixin Wang, “Software Engineering Issues in Cyber-Physical Systems,” School of Computer Science and Technology, Shandong University, Qingdao, China, June 28, 2023.
4. Qixin Wang, “Software Engineering Issues in Cyber-Physical Systems,” **Invited Keynote** in the 2nd Edition of Computer Science and Information technology Virtual (V-CSIT), February 24, 2023.
5. Qixin Wang, “Real-Time Switched Network Infrastructures for Cyber-Physical Systems,” **Invited Keynote** in the 6th International Conference on Computer Science and Application Engineering (CSAE 2022), October 21-22, 2022.
6. Qixin Wang, “Software Engineering Issues in Cyber-Physical Systems,” **Invited Keynote** in the 4th International Conference on Computer Science and Application Engineering (CSAE 2020), Sanya, China, October 20-22, 2020.
7. Qixin Wang, “Software Engineering Issues in Cyber-Physical Systems,” **Invited Keynote** in the 2020 International Conference on Signal Processing and Computer Science (SPCS2020), Xiamen, China, May 22-24, 2020.
8. Lei Bu, Qixin Wang, Naijun Zhan, Mingshuai Chen, “Tutorial: Formal analysis, Verification and Design of Safety-Critical CPS,” **Invited Tutorial** in Hot Topics Day of IEEE Real-Time Systems Symposium (RTSS 2019), Hong Kong, December 3rd,

- 2019, (RTSS 2019 was cancelled due to Hong Kong's local social movement, the tutorial was rescheduled and conducted on December 1st 7am-10:30am CST UTC-6, 2020 in RTSS 2020 Hot Topics Day).
9. Qixin Wang, "Software Engineering Issues in Cyber-Physical Systems," Institute of Software, Chinese Academy of Sciences, Beijing, China, October 25, 2019.
10. Qixin Wang, "Open Problem Space for Real-Time CPS Software Engineering Research," Invited Talk in Real-Time Systems Open Problems Seminar (RTSOPS), INRIA, Paris, France, July 24, 2019.
11. Qixin Wang, "The Integration Challenge of Cyber-Physical Systems," EHang Intelligent Equipment (Guangzhou) Co., Ltd, June 28, 2018. (EHang is the de facto number 2 consumer UAV manufacturer in China, just after DJI.)
12. Qixin Wang, "The Integration Challenge of Cyber-Physical Systems: A Software Engineering Perspective," invited speaker for 2017 International Symposium for Advanced Computing and Information Technology (ISACIT 2017), Asia Pacific Society for Computing and Information Technology, August 20, 2017.
13. Qixin Wang, "The Integration Challenge of Cyber-Physical Systems: A Software Engineering Perspective," talk for Dept. of Computing and Software, McMaster University, Canada, July 13, 2017.
14. Qixin Wang, "Real-Time Switched Network Infrastructures - with Discussions on Their Implications to Building Software Defined Networks," invited talk for Dept. of Information Engineering, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong SAR, August 5, 2016.
15. Qixin Wang, "Real-Time Wireless Communications Infrastructures for Cyber-Physical Systems," invited talk for Dept. of Information Engineering, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong SAR, June 13, 2016.
16. Qixin Wang, "The Integration Challenge of Cyber-Physical Systems," invited talk for School of Information Science and Engineering, Qufu Normal University, Rizhao, Shandong, China, June 3, 2016.
17. Qixin Wang, "Real-Time Switched Network and Its Applications to SDN/Shi Shi Jiao Huan Qi Wang Luo Ji Qi Dui SDN De Yi Yi," invited talk for Huawei Tech. Investment Co., Ltd, Hong Kong Science Park, Shatin, N.T., Hong Kong SAR, May 30, 2016.
18. Qixin Wang, "The Integration Challenge to Cyber-Physical Systems," invited talk for Dept. of Computer Science and Technology, Tsinghua University, Beijing, Nov. 20, 2015.
19. Qixin Wang, "The Integration Challenge to Cyber-Physical Systems," invited talk for School of Electronic and Information Engineering, Beijing Jiaotong University, Nov. 20, 2015.
20. Qixin Wang, "Building Dependable Distributed Medical Device Plug-and-Play / Gou Jian Ke Kao De Fen Bu Shi Yi Liao She Bei Ji Cha Ji Yong Ping Tai," invited talk for the 294th Young Scientists Forum of China Association for Science and Technology: Dialectical Modeling of Big Data on Chinese Medicine / Zhong Guo Ke Xie Di 294 Ci Qing Nian Ke Xue Jia Lun Tan: Zhong Yi Yao Da Shu Ju De Bian Zheng Mo Xing Gou Jian Yan Jiu, Beijing, China, Nov. 14-15, 2015.
21. Qixin Wang, "Dependability of Cyber-Physical Systems," invited talk for the State Key Laboratory of Automotive Safety and Energy, Tsinghua University, May 22, 2014.
22. **Lui Sha**, **Sathish Gopalakrishnan**, **Xue Liu**, **Qixin Wang**, "Cyber-Physical Systems: A New Frontier," **Invited Keynote** in *IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC 2008)*, pp. 1-9, Taichung, Taiwan, June 11-13, 2008.

Research Student Dissertation/Theses

[Fan22] FAN Xueli, Cooperative driving for connected and automated vehicles on dedicated lanes, PhD Dissertation, The Hong Kong Polytechnic University, 2022.

[He18] HE Zhijian, MPC System Identification Method based Oracle for Control-CPS Software Fault Localization, PhD Dissertation, The Hong Kong Polytechnic University, 2018.

[Huang17] HUANG Enyan, Physical Behavior Based Debugging: Test and Fault Localization on Cyber-Physical Systems, MPhil Thesis, The Hong Kong Polytechnic University, 2017.

[Tan16] TAN Feng, Toward Dependable Cyber-Physical Systems : a Study on Design Pattern and Evaluation Methodology, PhD Dissertation, The Hong Kong Polytechnic University, 2016.

[Wang13] WANG Yufei, Towards Safe Usage of COTS Wireless Devices in Medical Settings : a Profiling - Policing Framework for WBAN against WiFi Interference, 2013.

Services

Editorship

1. Lead Guest Editor for Springer “Real-Time Systems” Journal “Special Issue on Advances in Scheduling Resource Partitions and Real-time Computer Vision” (Special Issue on RTCSA 2021), from Jan 16, 2022 to Dec 2022.
2. Guest Editor for Transactions on Emerging Telecommunications Technologies (Wiley), Special Issue on Real-Time Internet of Things and Cyber-Physical Systems, until April, 2019.
3. Guest Editor for Mobile Information Systems (Hindawi), Special Issue on Advanced Technologies for Mobile IoT and Cyber-Physical Systems, until August, 2016.
4. Guest Editor for China Communications (ISSN 1673-5447, monthly English-language magazine officially published by the China Institute of Communications), Special Issue on Wireless Body-area Networks, v12, n2, until February, 2015.
5. Associate Editor for Taylor & Francis journal of Cyber-Physical Systems, since 2014.

Conference/Workshop Organizer

1. Steering Committee Chair: IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), from Feb 7, 2023 to Feb 6, 2026.
2. Steering Committee Member: IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), from Nov 11, 2021 to Nov 10, 2025.
3. Program Co-Chair: The 27th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), 2021.
4. Local Co-Chair: The 15th EAI International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine), 2019.
5. Program Co-Chair: The 21st IEEE International Symposium on Real-Time Computing (ISORC), 2018.
6. Web Chair: The 9th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), 2018.
7. Program Chair: The 14th IEEE/IFIP International Conference on Embedded and Ubiquitous Computing (EUC), Paris, France, August 24-26, 2016.
8. Publicity Co-Chair: The 12th IEEE International Conference on Mobile Ad hoc and Sensor Systems (MASS), Oct 19-22, 2015.
9. Program Co-Chair: The 21st IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), 2015.
10. Finance Co-Chair: IEEE Annual International Conference on Computer Communications (INFOCOM), 2015.
11. Publicity Chair: IEEE International Symposium on Industrial Electronics (ISIE), 2012.
12. Special Session Co-Organizer: IEEE International Symposium on Industrial Electronics (ISIE), Special Session on Network Based Control Systems and Applications, 2012.
13. Session Chair: The 8th IEEE/IFIP International Conference on Embedded and Ubiquitous Computing (EUC 2010), Session B13: Embedded Systems and Hardware/Software Co-Design II, 2010.

Technical Program Committee Member

1. ACM International Conference on Embedded Systems for Energy-Efficient Built Environments (BuildSys), 2015.
2. ACM International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (MobiHoc, formerly named “ACM International Symposium on Mobile Ad Hoc Networking and Computing”), 2023, 2022, 2021, 2020.
3. ACM International Workshop on Medical-Grade Wireless Networks (WiMD), co-located with ACM MobiHoc, 2009.
4. ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), 2020, 2019, 2018, 2017, 2016, 2015, 2013.
5. ACM/SIGAPP Symposium on Applied Computing (SAC), 2025, 2024 (CPS Track), 2023 (CPS Track), 2022 (Cyber-Physical Systems Track).
6. IEEE Annual International Conference on Computer Communications (INFOCOM), 2016, 2015, 2014, 2013, 2012.
7. IEEE International Conference on Cloud Computing Technology and Science (CloudCom), 2015.
8. IEEE International Conference on Cloud Engineering (IC2E), 2018.
9. IEEE International Conference on Computational Science and Engineering (CSE), Embedded and Ubiquitous Computing Track, 2010.
10. IEEE International Conference on Distributed Computing Systems (ICDCS), 2019.
11. IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), 2022, 2019, 2018, 2017, 2009.
12. IEEE International Conference on Embedded Software and Systems (ICCESS) 2015, 2014, 2013, 2012, 2011, 2010.
13. IEEE International Conference on Internet of Things (iThings), 2013.
14. IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS), 2013.
15. IEEE International Conference on Networking, Architecture, and Storage (NAS), 2012, 2011.
16. IEEE International Conference on Parallel and Distributed Systems (ICPADS), 2014.
17. IEEE International Conference on Pervasive Computing and Communications (PerCom), 2014.
18. IEEE International Conference on Service-Oriented Computing and Applications (SOCA), 2011, 2010, 2009.
19. IEEE International Performance Computing and Communications Conference (IPCCC), 2015, 2014, 2013, 2012, 2011.
20. IEEE International Symposium on Industrial Embedded Systems (SIES), 2013 (Work-in-Progress Session).
21. IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2020, 2015, 2013, 2012.
22. IEEE Real-Time Systems Symposium (RTSS), 2024, 2023, 2022, 2020, 2019 (main track), 2017 (Artifact Evaluation team member), 2016 (CPS track), 2015 (CPS track), 2013 (main track), 2012 (main track).
23. International Conference on Computer Communications and Networks (ICCCN), 2013 (Track on Wireless LAN, Ad Hoc and Mesh Networks, LAMN).
24. International Conference on Connected Vehicles and Expo (ICCVE), 2014, 2013.
25. International Conference on Health Information Science (HIS), 2015, 2014, 2013.
26. International Conference on Parallel Processing (ICPP), 2016.
27. International Workshop on Dependable and Secure Medical Devices and Systems (WDSMDS), co-located with IEEE/IFIP DSN, 2011.

28. National Software Application Conference (NASAC), 2019, 2018.
29. Symposium on Dependable Software Engineering (SETTA), 2015.
30. Workshop on Compositional Theory and Technology for Real-Time Embedded Systems (CRTS), co-located with IEEE RTSS, 2009.
31. Workshop on Safety and Security in Cyber-Physical Systems (SSCPS), 2012, 2011.

Reviewer (Papers and Proposals, Incomplete)

1. ACM Transactions on Design Automation of Electronic Systems, 2018*, 2016*, 2014*.
2. ACM Transactions on Cyber-Physical Systems (TCPS), 2025*, 2022*, 2020*, 2019*, 2018*, 2017*, 2016*, 2015*.
3. ACM Transactions on Embedded Computing Systems (TECS), 2013*, 2012*.
4. ACM Transactions on Sensor Networks (TOSN), 2016*, 2013*, 2010*, 2009*, 2006*.
5. Advances in Mechanical Engineering, 2014*.
6. Computer Networks (COMNET), Journal, Elsevier, 2013*, 2012*, 2011*, 2010*, 2007*, 2006*.
7. EuroMicro Conference on Real-Time Systems (ECRTS), 2007, 2005.
8. Formal Aspects of Computing, Springer, 2016*.
9. IEEE Communications Letters, 2010*.
10. IEEE Computer, 2018*.
11. IEEE Embedded Systems Letters, 2016*, 2015*.
12. IEEE IECON, 2012, 2010.
13. IEEE INFOCOM, 2010.
14. IEEE Internet of Things Journal, 2022*.
15. IEEE ISIE, 2011.
16. IEEE MASS, 2010.
17. IEEE PIMRC, 2013.
18. IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2008, 2006, 2004.
19. IEEE Real-Time Systems Symposium (RTSS), 2009, 2007, 2006, 2004, 2003.
20. IEEE Transactions on Automation Science and Engineering, 2015*, 2010*, 2009*.
21. IEEE Transactions on Communications, 2012*.
22. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2017*.
23. IEEE Transactions on Computers (TC), 2012*, 2010*, 2007*.
24. IEEE Transactions on Design Automation of Electronic Systems (TODAES), 2017*.
25. IEEE Transactions on Industrial Electronics (TIE), 2014*, 2012*, 2011*, 2010*.
26. IEEE Transactions on Industrial Informatics (TII), 2017*, 2015*, 2014*, 2013*, 2012*, 2011*, 2010*, 2009*, 2008*.
27. IEEE Transactions on Mobile Computing (TMC), 2018*, 2017*, 2015*, 2014*.
28. IEEE Transactions on Multimedia, 2015*.
29. IEEE Transactions on Network Science and Engineering, 2023*.
30. IEEE Transactions on Parallel and Distributed Systems, 2013*, 2008*, 2007*, 2006*.
31. IEEE Transactions on Vehicular Technology, 2015*, 2010*, 2009*.
32. IEEE Wireless Communications and Networking Conference (WCNC), 2006.
33. International Conference on Computer Communications and Networks (ICCCN), 2009.
34. International Conference on Information Processing in Sensor Networks (IPSN), 2007, 2004.
35. International Journal of Electronics and Communications (AEUE), Elsevier, 2014*.

36. Joint Workshop on High Confidence Medical Devices, Software, and Systems (HCMDSS) and Medical Device Plug-and-Play (MD PnP) Interoperability, 2007.
37. Journal of Communications and Networks (JCN), 2015*.
38. Journal of Computer Science and Technology (JCST), 2016*.
39. Journal of *Sensors*, MDPI, 2018*.
40. Journal of Systems Architecture (JSA), Elsevier, 2015*, 2010*.
41. National Science Foundation (NSF), USA, 2009.
42. Neural Computing and Applications, Springer, 2011, 2010.
43. Proceedings of the IEEE, 2018*.
44. Real-Time Systems, Journal, Springer, 2023*, 2022*, 2014*, 2012*, 2011*.
45. Science China Information Sciences, 2018*.
46. Service Oriented Computing and Applications, Springer, 2018*, 2012*.

* Refers to the review submission date.

Professional Society Service

1. Member, IEEE Industrial Electronics Society (IES) Technical Committee on Network-Based Control Systems and Applications