

Weisong Shi

Alumni Distinguished Professor and IEEE Fellow

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RESEARCH INTERESTS

Edge Computing, Vehicle Computing, Autonomous Driving, Connected Health

LEADERSHIP EXPERIENCES

CCC Council Member (2024 -)
Advisory Committee, NSF CISE (2023 - 2025)
Chair, Department of Computer and Information Sciences, University of Delaware (10/2022 -)
Interim Chair, Department of Computer Science, Wayne State University (05/2022 -09/2022)
Associate Dean for Research and Graduate Studies, College of Engineering, Wayne State University (09/2019 - 05/2022)
Program Director, National Science Foundation (08/2013 - 08/2015)
Center Director, NSF eCAT IUCRC Center 2021- 2023) (<http://ecat.center/>)
Chair, Wayne Mobility Initiative (2020 -) (<http://mobility.wayne.edu/>)
Director, Connected and Autonomous Research Laboratory (The CAR Lab, 12/2017 -) (<http://thecarlab.org/>)
Chair, IEEE Computer Society Technical Committee on the Internet (2012-2016)
Chair, IEEE Computer Society Special Technical Community on Autonomous Driving Technology (2020 -)

EDUCATION

Ph.D., Computer Engineering Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China Adviser: Professor Peisu Xia	Sep '95 – Mar '00
B.E., Computer Science Xidian University, Xi'an, China	Sep '91 – Jul '95

EMPLOYMENT

<i>Alumni Distinguished Professor and Chair</i> Department of Computer and Information Sciences University of Delaware	Feb '24 – present
<i>Professor and Chair</i> Department of Computer and Information Sciences University of Delaware	Oct '22 – Feb '24
<i>Interim Chair</i> Department of Computer Science Wayne State University	May '22 – Sep '22
<i>Associate Dean for Research and Graduate Studies</i> College of Engineering	May '20 – May '22

Wayne State University	
<i>Professor</i>	Aug '13 – Sep.'22
Department of Computer Science	
Wayne State University	
<i>Associate Dean for Research</i>	Aug '19 – May '20
College of Engineering	
Wayne State University	
<i>Program Director</i>	Aug '13 – Aug '15
CISE/CNS/CSR	
National Science Foundation	
<i>Associate Professor</i>	Aug '08 – Aug '13
Department of Computer Science	
Wayne State University	
<i>Assistant Professor</i>	Aug '02 – Aug '08
Department of Computer Science	
Wayne State University	
<i>Associate Research Scientist in Computer Science</i>	Apr '00 – Aug '02
Courant Institute of Mathematical Sciences	
New York University	

ACADEMIC HONORS AND AWARDS

- Highly Ranked Scholar (lifetime) by ScholarGPS, 2025
- Alumni Distinguished Professor of Computer and Information Sciences, 2024
- Editor-in-Chief of IEEE Internet Computing Magazine, 2024
- AAIA (Asia-Pacific Artificial Intelligence Association) Fellow 2023
- NSF CISE Advisory Committee, 2023-2026
- Crain's Notable Leaders in EV, 2022
- AI 2000 Most Influential Scholar Award, 2022
- Outstanding Scientific Article Award by CAST, 2020
- IEEE TCI Distinguished Service Award, 2020
- Most Downloaded Paper Award (IEEE Computer), 2018
- Best Paper Award of IEEE eHealth Technical Committee 2017
- Academia Advisory Board of IEEE Computer Society 2017
- Associate Editor-In-Chief of IEEE Internet Computing 2017
- ACM Distinguished Scientist 2016
- Appointed as the Inaugural Editor-In-Chief of **Smart Health Journal** 2016
- College of Engineering Faculty Research Excellence Award 2016
- **IEEE Fellow (Computer Society)** 2016

- IEEE HealthCom Best Student Paper Award 2015
- Wayne State University Charles H. Gershenson Distinguished Faculty Fellow 2015
- Best Paper Nominee of 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), September 2014
- Spotlight paper of IEEE Transactions on Parallel and Distributed Systems, April 2013
- Best Paper Award of IEEE International Symposium on Workload Characterization 2012
- Best Paper Award of National Annual Conference on High Performance Computing 2012
- Chair of the IEEE Computer Society Technical Committee on the Internet (2012 -)
- College of Liberal Arts and Sciences Teaching Award 2011
- Wayne State University Career Development Chair Award 2009
- **NSF CAREER Award** 2007
- College of Liberal Arts and Sciences Teaching Award 2007
- Marquis Who's Who of Emerging Leaders 2006
- Wayne State University Faculty Research Award, 2005
- Best Paper Award in IEEE 19th International Parallel and Distributed Processing Symposium, April 2005
- Best Paper Award in 4th International Conference on Web Engineering, July 2004
- Wayne State University Faculty Research Award, 2004
- **100 National Outstanding Dissertations of China**, 2002
- President Outstanding Honor of Chinese Academy of Sciences, 2000
- Microsoft Research Fellowship, 1999

GRANTS AND CONTRACTS

External Grants and Contracts

Total: \$35M

1. NSF, Collaborative Research: CSR: Small: CADaaS: Deterministic Communication and Predictive Computation for Connected Autonomous Driving as a Service, \$273,555, PI, 03/01/25 - 02/29/28.
2. West Digital (NSF eCAT IUCRC), Computational Autonomous Vehicle Storages (AVS), \$50k, PI, 1/1/25-12/31/25.
3. Tier IV, Design and Implementation of Infrastructure Programming Interface (IPI), \$60k, PI, 11/1/24. - 10/31/25.
4. NSF eCAT IUCRC, Off-road Motion Planning for Autonomous Mobile Robots, \$30k, PI, 1/1/25-12/31/25.
5. NSA, DRiving Automotive Industry WorkForce Transformation (DRIFT): Excellence and Innovation in Cybersecurity and Artificial Intelligence, \$250,000, PI, 12/1/24-11/30/26.
6. NSF, SLES: Orchestrating Model, System, and Hardware for Safe Learning in Autonomous Vehicles, \$1.5M, Co-PI (PI: Xi Peng), 10/1/24-9/30/28.
7. NSF, CSR: Small: Predictable Multi-Tenant DNN Inference for Autonomous Driving, \$600k, PI, 10/1/24 - 9/30/2027.
8. West Digital (NSF eCAT IUCRC), Data Storage System for Autonomous Vehicles, \$50k, PI, 1/1/24-12/31/24.

9. Tier IV, Investigating the Effect of C-V2X on Autoware.Universe, \$50k, PI, 9/1/23. - 8/31/24.
10. Toyota, Open Intersection Reference Design and Implementaion \$60k (Gift), PI, 1/1/24 - 12/31/24.
11. NSF, Collaborative Research: CPS: Medium: Physics-Model-Based Neural Networks Redesign for CPS Learning and Control, \$197,000. PI. 6/15/23-5/31/26.
12. NSF, IUCRC Phase I Wayne State University: Center for Electric, Connected and Autonomous Technologies for Mobility (eCAT), \$1,049,965 (PI), 3/15/23 - 2/28/2028. The total budget of the three sites is \$2.25M.
13. Toyota, Edge-based Architecture for CAVs, \$60k (Gift), PI, 1/1/23 - 12/31/23.
14. NSF, Convergence Accelerator Track H: Leveraging Human-Centered AI Microtransit to Ameliorate Spatiotemporal Mismatch between Housing and Employment for Persons with Disabilities, \$613,621, 02/23-01/24. Co-PI (PI: Brocanelli).
15. GM, Deep Prognostics for EV Batteries, \$200,000, PI, 8/1/22-7/31/24.
16. National Institutes for Environmental Health Sciences (NIEHS), P42 Center (P42 ES030991-01A1) entitled “Center for Leadership in Environmental Awareness and Research”, about \$10M, Senior Personnel, (MPIs: Mellisa Runge-Morris and Carol Miller), 10/1/22 - 9/30/27.
17. NSF, CNS Core: Small: Enabling Real-time, Scalable and Secure Collaborative Intelligence on the Edge, \$499,861, Co-PI (PI: Dong), 1/1/22-12/31/24.
18. NSF, Collaborative Research: PPOSS: Planning: Scaling Autonomous Vehicle Systems at the Edge: from On-Board Processing to Cloud Infrastructure, \$163,796, Co-PI (PI: Grosu), 7/15/21-6/30/22.
19. NSF, IUCRC Planning Grant Wayne State University: Center for Electric, Connected and Autonomous Technologies for Mobility (eCAT), \$20,000, 6/15/21-5/31/22.
20. Toyota, End-to-End Architecture for CAVs, \$50K (Gift), PI, 5/1//21-3/31/22.
21. NSF, Center for Broad Explorations on Spectrum Technologies for Navigation, Environment, Surveillance, and Transportation (BEST NEST) planning, \$300,000, 10/1/20-3/31/21, Co-PI, (PI, Seyed Zekavat, WPI)
22. NSF, RAPID: CORPUS: An Edge Intelligence-Assisted Multi-Granularity COVID-19 Risk Predication and Update System, \$150,000, 7/1/20-6/30/21. PI (Co-PI: Ming Dong)
23. MDOT Mobility Challenge for NAAIAS 2020, \$15,000, 5/1/20-6/30/20. (PI)
24. USDOT Autonomous Driving Systems (ADS) Demonstration Grant in City of Detroit, \$7,500,000, 1/1/20-12/31/23. (PI: City of Detroit, Wayne State PI).
25. NSF, SaTC: CORE: Small: Collaborative: Hardware-assisted Plausibly Deniable System for Mobile Devices, \$250,000, 10/1/19-9/30/22. PI (Original PI was Fengwei Zhang)
26. Great Lake Protection Fund (GLPF), Smart Management of Microplastic Pollution in the Great Lakes, \$929,000, 11/1/18-10/31/21, Co-PI. (PI: Yongli Zhang)
27. NSF, CSR PI meeting, \$160k, 8/1/18-7/31/19. PI.
28. Michigan Health Endowment Fund, Real Time Nursing Home Quality Control, MHEF R-1712-142406, \$79,846, 5/1/18-4/30/19, Co-PI. (PI Allen Goodman).
29. Facebook Research Award, \$50k, 2018. (PI)
30. Microsoft Azure Research Award, \$10K, 2/1/18-1/31/19, MPI (with Yongli Zhang).
31. NSF, S&AS:INT: Autonomous Battery Operating System (ABOS): An Adaptive & Comprehensive Approach to Efficient, Safe, & Secure Battery System Management, \$1.25M, 9/1/17-8/31/21, Co-PI (PI: Nathan Fisher).

32. NSF, OpenEdge: Toward Open and Transparent Edge Computing and Its Application in Public Safety, \$50K, 9/1/17-8/31/18. PI.
33. Michigan Health Endowment Fund, Real Time Nursing Home Quality Control, MHEF R-1608-140360, \$97,534, 5/1/17-4/30/18, Co-PI. (PI Allen Goodman).
34. NSF, CNS workshop on Grand Challenges on Computing at the Edge, 8/1/16-7/31/18, \$100,000. (Sole PI)
35. NSF, CCF Medium:Collaborative Research: Wizard: Exploiting Disk Performance Signatures for Cost-Effective Management of Large-Scale Storage Systems, 6/1/16-5/31/19, total budget \$700,000. (Sole PI)
36. NSF, EAGER: Fine-Grained Software Power Prediction and Its Application on Power Management of Heterogeneous Multicore Systems, 2/1/16-1/31/18, \$299,928. (Sole PI)
37. Intel, Internet of Things Innovators Lab, October 2015, \$30,000 + Equipment. (Sole PI)
38. Great Lakes Protection Fund (GLPF), Real-Time Energy Impact Monitors for Residential, Industrial and Policy Use, 7/1/13-6/30/15, \$557,000. (Co-PI, PI: Carol Miller).
39. Gates Foundation (Grand Challenge Exploration Program), Mobile Immunization Tracking and Management System, 11/1/12-4/30/14, \$100K (Direct Cost). (Co-PI, PI: Paul Kilgore)
40. NSF II-NEW: A Research and Education Infrastructure for Power- and Thermal-Aware Computing , \$386,396, 6/1/12-5/31/15. (PI, Co-PI: Nathan Fisher)
41. VA: iOS application for Veteran Health Goal Tracking Patient Centered Care, 10/1/11-8/31/12, \$200,000 (Co-PI, PI: Kai Yang)
42. Department of Homeland Security, "First Responder Resiliency-Identification and Application of Malleable Factors," (Co-PI, PI: Bengt Arnetz), October 2010 - September 2012. \$437,560. (stopped because of federal cut)
43. Air Force SBIR, "Building a Trust-aware Dynamic Routing Solution for Wireless Sensor Networks," (PI, lead organization: Intelligent Automation Inc.), December 2009 - December 2011, \$750,000 (Wayne State University, \$150,000).
44. Swedish Council for Working Life and Social Research, "Real-time Psychosocial Assessment and Cardiovascular Reactions: Application of an Interactive Wireless Data Collection System," (Co-PI, PI: Bengt Arnetz), June 2009 - June 2012, 2,100,000 SEK (Wayne State University, 324,000 SEK).
45. NSF, "NOSS: Consistency Model Driven Deceptive Data Detection and Filtering in Wireless Sensor Networks," (Sole PI), August 2007 - May 2011. \$200,002.
46. NSF, "**CAREER**: Mechanisms for Resource Sharing in Collaborative High-End Computing Platforms," (PI), April 2007 - April 2012. \$465,770 + \$121,002 (university match).
47. Chrysler/Bright Star Engineering, "Mobile Sensor Networks for Automotive Diagnostics," (Sole PI), July 2008 - July 2010, \$41,000.
48. AtomyNet, "Performance Evaluation of Symmetric and Asymmetric Encryption Algorithms and Exploiting New Potential Applications in Embedded Systems," (Sole PI), October 2005 - September 2006. \$58,548
49. Michigan Life Sciences Corridor, "Integration of Bioengineering and Biocomputing to Advance Michigan Computer-Assisted Surgery" August 2003 - July 2007. (PI- Vipin Chaudhary and 7 other Co-PIs, 10% + one 12 month GRA). \$3,377,560.

OPEN SOURCE SOFTWARE

1. Disk Failure Predication and Dataset
2. OpenVDAP:Open Vehicular Data Analytics Platform
3. HydraOne: An Indoor Research and Education Platform for CAVs

4. HERO: An Mobile App for Home Emission Read-Out
5. pTop: A process-level power profiling tool
6. Bugu: An application-level power profiler and analyzer for mobile devices
7. CloudAligner: A cloud-based sequence analysis tool
8. SPAN: A software power analyzer
9. RatSim: A Simulator of Rating Algorithms for Reputation Systems
10. SCore: A Cross-layer Sensor Core Library (for TinyOS)

PUBLICATIONS

Books(9)

1. Weisong Shi and Yuankai He, *Introduction to Autonomous Driving*, Springer, Oct 2025.
2. Lanyu Xu and Weisong Shi, *Edge Computing: Systems and Applications*, Wiley and IEEE Press, June 2025.
3. Sidi Lu and Weisong Shi, *Vehicle Computing: From Traditional Transportation to Computing on Wheels*, Springer, September 2024.
4. Weisong Shi and Liangkai Liu, *Computing Systems. for Autonomous Driving*, Springer, November 2021.
5. Weisong Shi, Fang Liu, Hui Sun, and Qingqi Pei, *Edge Computing* (2nd Edition), Science Press, March 2021.
6. Jie Cao, Quan Zhang, and Weisong Shi, *Edge Computing: A Primer*, Springer, December 2018.
7. Weisong Shi, Fang Liu, Hui Sun, and Qingqi Pei, *Edge Computing*, Science Press, January 2018.
8. Weisong Shi, *Foundations of Computer Systems Research*, Higher Education Press, 286 pages, October 2010. (Edited)
9. Weisong Shi, *Performance Optimization of Software Distributed Shared Memory Systems*, Higher Education Press, 251 pages, July 2004.

Journal Papers and Magazine Articles (144)

1. Qiren Wang, Yongtao Yao, Nejib Ammar and Weisong Shi, "iFLOW: An Intelligent and Scalable Multi-Model Federated Learning Framework on the Wheels," accepted by IEEE Transactions on Intelligent Transportation Systems (TITS), May 2025.
2. Yongtao Yao, Xinyu Du, Shenbing Jiang, Rasoul Salehi, Erik Huemiller, and Weisong Shi, "Prognostics of Internal Short Circuit in Lithium-Ion Batteries - Literature Survey and Performance Evaluation," accepted by Journal of Power Sources, April 2025.
3. Yuankai He and Weisong Shi, "A Vision for Transformative Intersections," IEEE Computer Magazine, Vol. 57, No. 12, December 2024. pp. 58-68.
4. Sidi Lu and Weisong Shi, "Vehicle as a Mobile Computing Platform: Opportunities and Challenges," IEEE Network Magazine, Vol. 38, No. 6, November 2024.
5. Qu Yuan Luo, Tom H. Luan, Weisong Shi, and Pingzhi Fan, "Heterogeneous Task Oriented Data Scheduling in Vehicular Edge Computing via Deep Reinforcement Learning," accepted by IEEE Transactions on Vehicular Technology. August 2024.
6. Baofu Wu, Ren Zhong, Yuxin Wang, Jian Wan, Jilin Zhang, and Weisong Shi, "VPI: Vehicle Programming Interface for Vehicle Computing," Journal of Computer Science and Technology, Vol. 39, No.1, pp. 22-44, January 2024.
7. Fuxiang Deng, Emil Javanov, Houbing Song, Weisong Shi, Yuan Zhang, Wenyao Xu, "WiLDAR: WiFi Signal-Based Lightweight Deep Learning Model for Human Activity Recognition," IEEE Internet of Things Journal, Vol. 11, No. 2, pp. 2899-2908. January 2024.
8. Liangkai Liu, Yanzhi Wang, and Weisong Shi, "CPT: A Configurable Predictability Testbed for DNN Inference in AVs," Tsinghua Science and Technology (invited). January 2024.
9. Shihong Hu, Zhihao Qu, Bin Tang, Baoli Ye, Guanghui Li, and Weisong Shi, "Joint Service Request Scheduling and Container Retention in Serverless Edge Computing for Vehicle-Infrastructure Collaboration," accepted by IEEE Transactions on Mobile Computing, October 2023.
10. Hui Sun and Weisong Shi, "Optimal Task Offloading and Trajectory Planning Algorithms for Collaborative Video Analytics with UAV-assisted Edge in Disaster Rescue," accepted by IEEE Transactions on Vehicular Technology, Sep. 2023.

11. Huizi Xiao, Jun Zhao, Jie Feng, Lei Liu, Qingqi Pei and Weisong Shi. "Joint Optimization of Security Strength and Resource Allocation for Computation Offloading in Vehicular Edge Computing," *IEEE Transactions on Wireless Communications*, Vol. 22, No. 12, pp. 8751-8765, December 2023.
12. William He, Baofu Wu, Zheng Dong, and Weisong Shi, "Towards C-V2X Enabled Collaborative Autonomous Driving," *IEEE Transactions on Vehicular Technology*. Vol. 72, No. 12, pp. 15450-15462, December 2023.
13. Haitham H. Esmat, Beatriz Lorenzo, and Weisong Shi, "Towards Resilient Network Slicing for Satellite-Terrestrial Edge Computing IoT," *IEEE Internet of Things Journal*. Vol. 10, No. 16, pp. 14621-14645, August 2023.
14. Sidi Lu, Xin Yuan, Weisong Shi, "Reinforcement Learning for Adaptive Video Compressive Sensing," *ACM Transactions on Intelligent Systems and Technology*. Vol. 14, No. 5, August 2023.
15. Liangkai Liu, Wei Li, Dawei Wang, Yi Wu, Ruigang Yang and Weisong Shi, "Fuel Rate Predication for Heavy-Duty Trucks," *IEEE Transactions on Intelligent Transportation Systems (TITS)*, Vol. 24, No. 8, pp. 8222-8235, August 2023.
16. Hui Sun, Yiru Chen, Kewei Sha, Shaoyuan Huang, Xiaofei Wang, and Weisong Shi, "A Proactive On-Demand Content Placement Strategy in Edge Intelligence Gateways," accepted by *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Vol. 24, No. 7, pp. 2072-2090, July 2023.
17. Jiashun Suo, Xingzhou Zhang, Weisong Shi, and Wei Zhang, "E3-UAV: An Edge-based Energy-Efficiency Object Detection System for Unmanned Aerial Vehicles," accepted by *IEEE Internet of Things Journal*. April 2023.
18. Javad Roostaie, Yongli Z. Wager, Weisong Shi, Timothy Dittrich, Carol Miller, and Kishore Gopalakrishnan, "IoT-based Edge Computing (IoTEC) for Improved Environmental Monitoring," accepted by *Sustainable Computing: Informatics and Systems*, April 2023.
19. Jiashun Suo, Tianyi Wang, Xingzhou Zhang, Haiyang Chen, Wei Zhou, and Weisong Shi, "HIT-UAV: A High-Altitude Infrared Thermal Dataset for Unmanned Aerial Vehicles Object Detection," *Scientific Data by Nature Research*, February 2023.
20. Huizi Xiao, Lin Cai, Jie Feng, Qingqi Pei, and Weisong Shi, "Resource Optimization of MAB-based Reputation Management for Data Trading in Vehicular Edge Computing," accepted by *IEEE Transactions on Wireless Communications*, January 2023. DOI: 10.1109/TWC.2022.3233035
21. Qu Yuan Luo, Tom H. Luan, Weisong Shi, and Pingzhi Fan, "Edge Computing Enabled Energy-Efficient Multi-UAV Cooperative Target Search," *IEEE Transactions on Vehicular Technology*. Vol. 72, No. 6, pp. 7757-7771, June 2023.
22. Yijing Lin, Zhipeng Gao, Weisong Shi, Qian Wang, Huangqi Li, Miaomiao Wang, Yang Yang, Lanlan Rui, "A Novel Architecture Combining Oracle with Decentralized Learning For IIoT," *IEEE Internet of Things Journal*, Vol. 10, No. 5, March 2023.
23. Sidi Lu and Weisong Shi, "Vehicle Computing: Vision and Challenges," *Journal of Information and Intelligence*, Vol. 1, No. 1, January 2023.
24. Qu Yuan Luo, Tom H. Luan, Weisong Shi, and Pingzhi Fan, "Deep Reinforcement Learning Based Computation Offloading and Trajectory Planning for Multi-UAV Cooperative Target Search," accepted in *IEEE Journal on Selected Areas in Communications Special Issue on Multi-Tier Computing for Next Generation Wireless Networks*. October 2022.
25. Zheng Dong, Yan Lu, Guangmo Tong, Yuanchao Shu, Shuai Wang and Weisong Shi, "Watchdog: Real-time Vehicle Tracking on Geo-distributed Edge Nodes," accepted by *ACM Transactions on Internet of Things*. July 2022.
26. Sidi Lu, Yongtao Yao, Bing Luo, Zhifeng Yu, Dalong Li, and Weisong Shi, "EdgeWare: Toward Extensible and Flexible Middleware for Connected Vehicle Services," *CCF Transactions on High Performance Computing*, May 2022, DOI: 10.1007/s42514-022-00100-4.
27. Lanyu Xu, Arun Iyengar and Weisong Shi, "NLUBroker: A QoE-driven Broker System for Natural Language Understanding Services," *ACM Transactions on Internet Technology*. Vol. 22, No. 3, August 2022.
28. Hui Sun, Bo Zhang, Xiuye Zhang, Ying Yu, Kewei Sha, Weisong Shi, "FlexEdge: Dynamic Task Scheduling for a UAV-based On-Demand Mobile Edge Server," *IEEE Internet of Things Journal*. Vol. 9, No. 17, September 2022. pp. 15983-16005.
29. Yang Ming, Chenhao Wang, Hang Liu, Yi Zhao, Jie Feng, Ning Zhang, Weisong Shi, "Blockchain-Enabled Efficient Dynamic Cross-Domain Deduplication in Edge Computing," *IEEE Internet of Things Journal*. Vol. 9, No. 17, September 2022. 15639-15656.
30. Shihong Hu, Weisong Shi, and Guanghui Li. "CEC: A Containerized Edge Computing Framework for Dynamic Resource Provisioning," accepted by *IEEE Transactions on Mobile Computing*. January 2022.
31. Blesson Varghese, Nan Wang, David Bermbach, Cheol-Ho Hong, Eyal de Lara, Weisong Shi, Christopher Stewart, "A Survey on Edge Performance Benchmarking," *ACM Computing Surveys*, Vol. 54, No. 3, April 2022.
32. Sidi Lu, Baofu Wu, Xiaoda Cong, Yongtao Yao and Weisong Shi, "SafeCampus: Multimodal-based Campus-wide COVID-19 Risk Prediction," *IEEE Internet Computing Magazine*, Vol. 25, No. 1, pp. 60-67, January/February 2022.

33. Zhenyu Fan, Wang Yang, Fan Wu, Jing Cao, and Weisong Shi, "Serving at the Edge: An Edge Computing Service Architecture Based on ICN," *ACM Transactions on Internet Technology*. Vol. 22, No. 1, 2022.
34. Huizi Xiao, Qingqi Pei, Xifei Song, Weisong Shi, "Authentication Security Level and Resource Optimization of Computation Offloading in Edge Computing Systems," accepted by *IEEE Internet of Things*, December 2021.
35. Cong Gao, Geng Wang, Weisong Shi, Zhongmin Wang and Yanping Chen, "Autonomous Driving Security: State-of-the-Art and Challenges," accepted by *IEEE Internet of Things Journal*. November 2021.
36. Yongtao Yao, Tony Geara and Weisong Shi, "Impact of COVID19 on City-Scale Transportation and Safety: An Early Experience from Detroit," accepted by *Elsevier Smart Health*, September 2021.
37. Shihong Hu, Guanghui Li and Weisong Shi, "LARS: A Latency-aware and Real-time Scheduling Framework for Edge-enabled Internet of Vehicles," accepted by *IEEE Transactions on Services Computing*, August 2021.
38. Qu Yuan Luo, Shihong Hu, Changle Li, Guanghui Li, and Weisong Shi, "Resource Scheduling in Edge Computing: A Survey," *IEEE Communications Surveys and Tutorials*, Vol. 23, No. 4, pp. 2131-2165. 2021
39. Tianze Wu, Baofu Wu, Sa Wang, Liangkai Liu, Shaoshan Liu, Yungang Bao, Weisong Shi, "Oops! It's Too Late. Your Autonomous Driving System Needs a Faster Middleware," *IEEE Robotics and Automation Letters (RA-L)*, Vol. 6, No. 4, pp. 7301-7308. October 2021.
40. Qu Yuan Luo, Changle Li, Tom H. Luan and Weisong Shi, "Self-Learning based Computation Offloading for Internet of Vehicles: Model and Algorithm," accepted by *IEEE Transactions on Wireless Communications*, Vol. 20, No. 9, September 2021. pp. 5913-5925.
41. Liangkai Liu, Shaoshan Liu and Weisong Shi, "4C: A Computation, Communication, and Control Co-Design Framework for CAVs," *IEEE Wireless Communication Magazine, Special Issue on Emerging Visual IoT Technologies for Future Communications and Networks*, Vol. 28, No. 4, August 2021. pp. 42-48.
42. Huizi Xiao; Jun Zhao; Qingqi Pei; Jie Feng; Lei Liu; Weisong Shi, "Vehicle Selection and Resource Optimization for Federated Learning in Vehicular Edge Computing," accepted by *IEEE Transactions on Intelligent Transportation Systems (TITS)*, June 2021. ,
43. Blesson Varghese, Eyal de Lara, Aaron Ding, Cheol-Ho Hong, Flavio Bonomi, Schahram Dustdar, Paul Harvey, Peter Hewkin, Weisong Shi, Mark Thiele, Peter Willis, "Revising the Arguments for Edge Computing Research," *IEEE Internet Computing*, Nov/December, 2021.
44. Yanming Chen, Xiang Wen, Yiwen Zhang, and Weisong Shi, "CCPrune: Collaborative Channel Pruning for Learning Compact Convolutional Networks," *Neurocomputing*, Vol. 451, September 2021, pp. 35-45.
45. Qingyang Zhang, Hong Zhong, Weisong Shi, Lu Liu, "A Trusted and Collaborative Framework for Deep Learning in IoT," *Computer Networks*, Vol. 193, July 2021.
46. Mohit Kumar, Saurabh Gupta, Tirthak Patel, Michael Wilder, Weisong Shi, Song Fu, Christian Engelmann, Devesh Tiwari, "Study of Interconnect Errors, Network Congestion, and Applications Characteristics for Throttle Prediction on a Large Scale HPC System," *Journal of Parallel and Distributed Computing*, Vol. 153, July 2021, pp. 29-43.
47. Liangkai Liu, Sidi Lu, Ren Zhong, Baofu Wu, Yongtao Yao, Qingyang Zhang, Weisong Shi, "Computing Systems for Autonomous Driving: State-of-the-Art and Challenges," *IEEE Internet of Things Journal*, Vol. 8, No. 8, April 2021. pp. 6469-6486.
48. Sidi Lu and Weisong Shi, "The Emergence of Vehicle Computing," *IEEE Internet Computing Magazine*, May/June 2021.
49. Qu Yuan Luo, Changle Li, Tom H. Luan, Weisong Shi, "Minimizing the Delay and Cost of Computation Offloading for Vehicular Edge Computing," accepted by *IEEE Transactions on Services Computing*, March 2021.
50. Qingyang Zhang, Hong Zhong, Jie Cui, Lingmei Ren and Weisong Shi, "AC4AV: A Flexible and Dynamic Access Control Framework for Connected and Autonomous Vehicles," *IEEE Internet of Things Journal*, Vol. 8, No. 3, Feb. 2021, pp.1946-1958.
51. Congfeng Jiang, Yitao Qiu, Weisong Shi, Zhefeng Ge, Jiwei Wang, Shenglei Chen, Christophe Cerin, Zujie Ren, Guoyao Xu and Jiangbin Lin, "Characterizing Co-located Workloads in Alibaba Cloud Datacenters," accepted by *IEEE Transactions on Cloud Computing*. October 2020.
52. Sidi Lu, Yongtao Yao and Weisong Shi, "CLONE: Collaborative Learning on the Edges," *IEEE Internet of Things Journal*, accepted, October 2020.
53. Yanming Chen, Chao Li, Luqi Gong, Xiang Wen, Yiwen Zhang, Weisong Shi, "A Deep Neural Network Compression Algorithm based on Knowledge Transfer for Edge Devices," accepted by *Elsevier Computer Communications*, September 2020.
54. Qu Yuan Luo, Changle Li, Tom Luan, Weisong Shi, "Collaborative Data Scheduling for Vehicular Edge Computing via Deep Reinforcement Learning," *IEEE Internet of Things Journal*, Vol. 7, No. 10, October. 2020. pp.9637-9650.

55. Kaile Xiao, Weisong Shi, Zhipeng Gao, Congcong Yao, Xuesong Qiu, "DAER: A Resource Pre-allocation Algorithm of Edge Computing Server using Blockchain in Intelligent Driving," *IEEE Internet of Things Journal*, Vol. 7, No. 10, October 2020. pp. 9291-9302.
56. Qu Yuan Luo, Changle Li, Tom Luan, Weisong Shi, "EdgeVCD: Intelligent Algorithm Inspired Content Distribution in Vehicular Edge Computing Network," *IEEE Internet of Things Journal*, Vol. 7, No. 6, June 2020. pp. 5562-5579.
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2. Zhaofeng Tian, Lichen Xia, and Weisong Shi, "EMATO: Energy-Model-Aware Trajectory Optimization for Autonomous Driving," in Proceedings of the 2025 IEEE International Conference on Robotics and Automation (ICRA), Atlanta, USA, May 19-23, 2025.

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4. Arpan Bhattacharjee, Zheyuan Xu, Vikas Vyas and Weisong Shi, "ReLES-OTA: A Reinforcement-Learning Enhanced Scalable Over-the-Air Update Approach for CAVs," in Proceedings of the Third IEEE International Conference on Mobility: Operations, Services, and Technologies (MOST), Newark, DE, May 4-6, 2025. (Best Paper Runner Up Award)
5. Ren Zhong, Zhaofeng Tian, Qiren Wang, Mingyu Guo and Weisong Shi, "Design and Implementation of A Voice Controlled Indoor Autonomous Robot Kit," in Proceedings of the Third IEEE International Conference on Mobility: Operations, Services, and Technologies (MOST), Newark, DE, May 4-6, 2025.
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14. Chao Wu, Yifan Gong, Liangkai Liu, Mengquan Li, Yushu Wu, Xuan Shen, Zhimin Li, Geng Yuan, Weisong Shi and Yanzhi Wang, "AyE-Edge: Automated Deployment Space Search Empowering Accuracy yet Efficient Real-Time Object Detection on the Edge," in Proceedings of the 43rd ACM/IEEE International Conference on Computer-Aided Design (ICCAD), New Jersey, USA, Oct. 27-31 2024.
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