

## Wenchao Xu

Department of Computing,  
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### RESEARCH INTERESTS

Distributed Computing, Multimodal learning, Wireless Networks and Internet-of-Things

### EMPLOYMENT

- **Research Assistant Professor** Nov. 2020—Present  
Department of Computing, The Hong Kong Polytechnic University
- **Assistant Professor** May 2020—Oct. 2020  
School of Computing and Information Sciences, Caritas Institute of Higher Education
- **Research Associate** Sep. 2018—April 2020  
Department of Computing, The Hong Kong Polytechnic University  
Supervisor: Professor Song Guo
- **Software Engineer** Apr. 2011—Aug. 2014  
Alcatel-Lucent Shanghai Bell Co., Ltd., Shanghai

### EDUCATION

- **Ph.D., Electrical and Computer Engineering** Sep. 2014—Sep. 2018  
University of Waterloo, Waterloo, Ontario, Canada  
Supervisor: Professor Xuemin (Sherman) Shen  
GPA: 90/100  
Thesis: Performance Analysis of Drive-thru Internet Access
- **Master of Engineering, Information and Communication Engineering** Sep. 2008—Mar. 2011  
Zhejiang University, Hangzhou, P. R. China  
Supervisor: Professor Aiping Huang, Professor Cunqing Hua  
GPA: 83/100  
Thesis: Research of Resource Allocation Algorithms in 802.11 wireless networks
- **Bachelor of Engineering, Communications Engineering** Sep. 2004—June 2008  
Zhejiang University, Hangzhou, P. R. China  
Chu Kochen Honors Program  
GPA: 3.81/4.0  
Thesis: Research and Implementation of Auto Configuration in Wireless Sensor Networks

### HONORS AND AWARDS

- Best Paper Award, PIMRC, 2023
- Best Demo Award Winner, ICC, 2023
- Nobert Wiener Review Award, IEEE/CAA 2020
- Best Paper Award, IEEE Globecom 2018
- Ontario Research & Development Challenge Fund Bell Scholarship 2018
- University of Waterloo Graduate Scholarship 2016
- University of Waterloo Faculty of Engineers Awards 2016
- International Doctoral Student Award 2014
- Alcatel-Lucent New Employee Award 2012
- University Scholarship (Level I) of Graduate Student (top 10%) at Zhejiang University 2010
- Excellent Graduate of Zhejiang University (top 10%) 2008

**RESEARCH & PROJECT EXPERIENCES****Department of Computing, The Hong Kong Polytechnic University, Hong Kong****Primary Investigator**

- ***Elastic Multimodal learning over Internet of Vehicles*** **2024-2026**
  - General Research Fund (GRF) of Hong Kong (Granted: 1,358,201 HKD)
  - Research effective IoV multimodal fusion and vehicular tasks adaptation
  - Integration of Multimodal learning & Internet of Vehicles
- ***Opportunistic Federated Learning over Internet of Vehicles*** **2022-2024**
  - General Research Fund (GRF) of Hong Kong (Granted: 838,393 HKD)
  - Research novel distributed learning paradigm for vehicle users
  - Integration of AI & Internet of Vehicles

**Department of Computing, The Hong Kong Polytechnic University, Hong Kong****Primary Investigator**

- ***Collaborative Learning over Internet of Vehicles*** **2021-2022**
  - PolyU startup fund (Granted: 750,000 HKD)
  - Research distributed computing paradigm over Internet of Vehicles

**Department of Computing, The Hong Kong Polytechnic University, Hong Kong****Research Associate**

- ***Data Analytics and Machine Learning Algorithms for Smart Transportation Systems*** **2020**
  - Proposal for Chinese National Engineering Research Centre (CNERC) Funding (Granted 500k HKD)
  - Research on Reinforcement learning based rate adaptation in drive-thru Internet
  - Research on Deep learning based rate sampling for 802.11af TVWS vehicular access
  - Research on AI based joint design for MAC and link adaptation
- ***Edge Intelligence Oriented Resource Management and Deployment Optimization*** **2020**
  - Proposal for National Natural Science Foundation of China (NSFC) (Granted 640k RMB)
  - Research on NARX prediction based link evaluation for mobile Internet of things
- ***Proactive and Cooperative Resource Allocation in Wide-scale Edges*** **2018—2020**
  - Proposal compose for General Research Fund (GRF) of Hong Kong. (Granted: 935k HKD)
  - Research on game-theoretical analysis for edge cooperation.

**Department of Electrical and Computer Engineering, University of Waterloo, Canada****Research Assistant**

- ***Exploitation of Opportunistic Spectrum for Vehicular Communication Systems*** **2014—2018**
  - DSRC/WiFi/TVWS enabled vehicular systems implementation
  - Research of vehicular Internet Access and mobile offloading paradigms
- ***High Efficiency Wireless LAN MAC Layer Design*** **2015—2017**
  - Performance analysis of vehicular TDMA MAC protocol
  - Implementation of VeMAC over DSRC
- ***Space-Air-Ground Integrated Vehicular Network for Immersive Driving Experience*** **2017—2018**
  - Space-Air-Ground integrated vehicular network simulation
  - Research of Interworking in heterogeneous vehicular networks
  - Development of multi-interface multi-channel communication prototype

**TEACHING AND MENTORING EXPERIENCES****Teaching Experiences**

- **Lecturer** **2021**  
 Department of Computing, The Hong Kong Polytechnic University  
 Undergraduate course: COMP1011 ‘Programming Fundamentals’ 21/22  
 Graduate course: COMP5327 ‘Wireless Networking and Mobile Computing’ 20/21  
 Graduate course: COMP5311 ‘Internet Infrastructure and Protocols’ 22/23
- **Lecturer** **2020**  
 School of Computing and Information Sciences, Caritas Institute of Higher Education  
 Undergraduate course: CIS120 ‘Network, Cloud, and Security’
- **Tutorial Lecturer** **2017**  
 Department of Electrical and Computer Engineering, University of Waterloo  
 Undergraduate course: ECE318 ‘Analog and Digital Communications’

**Mentoring Experience**

- Fushuo Huo, Ph.D. student at The Hong Kong Polytechnic University Sep. 2022—present  
 Chief supervisor on multimodal learning
- Jinyu Chen, Ph.D. student at The Hong Kong Polytechnic University Sep. 2022—present  
 Chief supervisor on personalized federated learning
- Yunfeng Fan, Ph.D. student at The Hong Kong Polytechnic University Sep. 2022—present  
 Chief supervisor on collaborative learning over multimodal Internet of things
- Haodong Wan, Research Assistant, The Hong Kong Polytechnic University Sep. 2021—Sep. 2022  
 Mentoring on AI enabled medium access protocol (MSc Student from Xidian Univ.)
- Hao Dong, Research Assistant, The Hong Kong Polytechnic University Sep. 2021—May 2022  
 Mentoring on intelligent networking (Ph.D. Student from Shanghai Jiaotong Univ.)
- Zhaoyi Lu, Remote Ph.D. student at Shanghai Jiaotong University May 2021—present  
 Co-supervisor on backdoor attack and wireless fingerprinting

**PROFESSIONAL SERVICES & ACTIVITY****Guest Editor**

- IEEE/CIC ICCV Workshop, 2022,2023
- IEEE Open Journal of the Computer Society, 2021
- Springer Peer-to-Peer Networking and Applications, 2020

**Journal Administrative Assistant**

- IET Communications, 2016-2018
- IEEE Internet of Things Journal, 2017-2018

**Delegate Associate Editor**

- Springer Nature Computer Science, 2019

**Technical Program Committee**

- ICCV, 2022
- ICNC, 2019
- WCSP, 2019

**Demo Chair**

- The 18th International Conference on Intelligent Environments (IE2022), Biarritz, France

**Session Chair**

- Vehicular Communications, Networks, and Telematics sessions, IEEE VTC-Fall, Toronto, Canada, 2017

**Volunteer**

- IEEE Globecom 2016, Washington D.C., USA, December 2016

**Presenter**

- TU-Automotive Detroit, USA, June 2016

## PUBLICATIONS

**Publication Index: 1 Monograph, 1 Patent, 46 Journal and 33 Conference papers.**

**Google Citation: 3470, h-index: 26**

### **Book**

[B1] **W. Xu**, X. Shen, H. Zhou, “Internet Access in Vehicular Networks”, Springer, Dec, 2021

### **Patent**

[P1] X. Shen, **W. Xu**, H. Zhou, “System and Method for Automotive Wi-Fi Access and Connection”  
Authorized in US and China, Application number: PCT/CA2017/051292 (US) CN110024476A (CHN)

### **Journal Papers**

- [J1] L. Wu, S. Guo, Z. Hong, Y. Liu, **W. Xu**, Y. Zhan, ‘Long-term Adaptive VCG Auction Mechanism for Sustainable Federated Learning with Periodical Client Shifting’, IEEE Transactions on Mobile Computing, accepted
- [J2] J. Shen, N. Cheng, X. Wang, F. Lyu, **W. Xu**, Z. Liu, K. Aldubaikhy, X. Shen, ‘RingSFL: An Adaptive Split Federated Learning Towards Taming Client Heterogeneity’, IEEE Transactions on Mobile Computing, accepted
- [J3] X. Xie, C. Hua, P. Gu, **W. Xu**, ‘AirCon: Over-the-Air Consensus Protocol for Wireless Blockchain Networks’, IEEE Transactions on Mobile Computing, July 2023
- [J4] **W. Xu**, H. Wan, H. Wang, N. Cheng, Q. Chen, H. Zhou, S. Guo, ‘Fast Packet Loss Inferring via Personalized Simulation-Reality Distillation’, IEEE Transactions on Mobile Computing, to appear
- [J5] **W. Xu**, H. Wang, Z. Lu, C. Hua, N. Cheng, S. Guo, ‘Mobile Collaborative Learning over Opportunistic Internet of Vehicles’, IEEE Transactions on Mobile Computing, DOI: 10.1109/TMC.2023.3273425, May 2023
- [J6] T. Guo, S. Guo, J. Wang, X. Tang, **W. Xu**, ‘PromptFL: Let Federated Participants Cooperatively Learn Prompts Instead of Models — Federated Learning in Age of Foundation Model’, IEEE Transactions on Mobile Computing, to appear
- [J7] H. Dong, C. Hua, L. Liu, **W. Xu**, S. Guo, ‘Optimization-Driven DRL Based Joint Beamformer Design for IRS-Aided ITSN Against Smart Jamming Attacks’, IEEE Transactions on Wireless Communications, DOI: 10.1109/TWC.2023.3281452
- [J8] J. Chen, **W. Xu**, P. Hu, J. Wang, K. Chen, Y. Feng, S. Guo ‘Towards Multi-user Access Fairness in Reconfigurable Intelligent Surface Assisted Wireless Networks’, IEEE Wireless Communications Magazine, April, 2023
- [J9] T. Guo, S. Guo, F. Wu, **W. Xu**, J. Zhang, Q. Zhou, Q. Chen, W. Zhuang, ‘Tree Learning: Towards Promoting Coordination in Scalable Multi-Client Training Acceleration’, IEEE Transactions on Mobile Computing, Mar. 2023
- [J10] W. Gu, Y. Liu, C. Wang, **W. Xu**, Y. Yu, W. Lu, H. Zhu, ‘A General 3D Geometry-Based Stochastic Channel Model for B5G mmWave IIoT’, IEEE Internet of Things Journal, To appear
- [J11] H. Dong, C. Hua, L. Liu, **W. Xu**, S. Guo, R. Tafazolli, “Joint Beamformer Design and User Scheduling for Integrated Terrestrial-Satellite Networks,”, IEEE Transactions on Wireless Communications, Feb. 2023
- [J12] A. Jin, **W. Xu**, S. Guo, B. Hu, L. Yeung, “PS+: A Simple yet Effective Framework for Fast Training on Parameter Server,” IEEE Transactions on Parallel and Distributed Systems, Aug. 2022
- [J13] H. Dong, C. Hua, L. Liu, **W. Xu**, R. Tafazolli, “Intelligent Reflecting Surface-Aided Integrated Terrestrial-Satellite Networks,” IEEE Transactions on Wireless Communications, Oct. 2022
- [J14] H. Wang, R. Li, C. Li, P. Zhou, Y. Li, **W. Xu**, S. Guo, “Gradient Scheduling with Global Momentum for Asynchronous Federated Learning in Edge Environment,” IEEE Internet of Things Journal, Mar. 2022
- [J15] T. Yang, M. Qin, N. Cheng, **W. Xu**, L. Zhao “Liquid software-based edge intelligence for future 6G networks”, IEEE Network (2022)
- [J16] D. Hu, J. Chen, H. Zhou, K. Yu, B. Qian, **W. Xu**, “Leveraging Blockchain for Multi-Operator Access Sharing Management in Internet of Vehicles”, IEEE Transactions on Vehicular Technology, Dec. 2021.
- [J17] H. Wang, Z. Qu, Q. Zhou, H. Zhang, B. Luo, **W. Xu**, S. Guo, R. Li, “A Comprehensive Survey on Training Acceleration for Large Machine Learning Models in IoTs”, IEEE Internet of Things Journal, Sep. 2021.
- [J18] M. He, C. Hua, **W. Xu**, P. Gu, X. Shen “Delay Optimal Concurrent Transmissions with Raptor Codes in Dual Connectivity Networks”, IEEE Transactions on Network Science and Engineering (2021)
- [J19] H. Wu, J. Chen, C. Zhou, W. Shi, N. Cheng, **W. Xu**, W. Zhuang and X. Shen “Resource management in space-air-ground integrated vehicular networks: SDN control and AI algorithm design”, IEEE Wireless Communications, 27(6), pp.52-60, 2020

- [J20] Z. Ke, C. Hua, P. Gu, and **W. Xu**, “User Clustering and Proactive Group Handover Scheduling in LEO Satellite Networks”, In 2020 IEEE Computing, Communications and IoT Applications (ComComAp), 2020
- [J21] X. Wang, Q. Ma, J. Li, H. Zhang, **W. Xu**, “An Improved SC Flip Decoding Algorithm of Polar Codes Based on Genetic Algorithm”, IEEE Access, vol. 8, 2020.
- [J22] M. Qin, N. Cheng, Z. Jing, T. Yang, **W. Xu**, Q. Yang, RR Rao, “Service-Oriented Energy-Latency Tradeoff for IoT Task Partial Offloading in MEC-Enhanced Multi-RAT Networks”, IEEE Internet of things journal, August, 2020.
- [J23] H. Zhou **W. Xu**, J. Che, W. Wang “Evolutionary V2X Technologies Toward Internet of Vehicles: Challenges and Opportunities”, **Proceedings of IEEE**, vol. 108, no.2 (2020), pp. 308–323. (**Highly cited paper**)
- [J24] **W. Xu**, S. Guo, S. Ma, H. Zhou, M. Wu, W. Zhuang “Augmenting Drive-thru Internet via Reinforcement Learning based Rate Adaptation”, IEEE Internet of Things Journal, vol. 7, no.4 (2020), pp.3114–3123.
- [J25] **W. Xu**, H. Zhou, H. Wu, F. Lyu, N. Cheng, X. Shen “Intelligent Link Adaptation in 802.11 Vehicular Networks: Challenges and Solutions”, IEEE Communications Standards Magazine, vol. 3, no. 1, pp. 12–18, 2019
- [J26] **W. Xu**, W. Shi, F. Lyu, H. Zhou, N. Cheng, X. Shen “Throughput Analysis of Vehicular Internet Access via Roadside WiFi Hotspot”, IEEE Transactions on Vehicular Technology, vol.68, no.4, pp.3980–3991, 2019
- [J27] **W. Xu**, H. Zhou, Y. Bi, N. Cheng, X. Shen “Exploiting hotspot-2.0 for traffic offloading in mobile networks”, IEEE Network, vol.32, no.5, pp.131–137, 2018
- [J28] **W. Xu**, H. Zhou, N. Cheng, F. Lyu, W. Shi, J. Chen, X. Shen “Internet of vehicles in big data era”, IEEE/CAA Journal of Automatica Sinica, vol.5, no.1, pp.19–35, 2017 (**Highly cited paper**)
- [J29] **W. Xu**, O. Ha, W. Zhuang, X. Shen “Delay analysis of in-vehicle Internet access via on-road WiFi access points”, IEEE access, vol.5, pp.2736–2746, 2017
- [J30] L. Qian, A. Feng, N. Yu, **W. Xu**, Y. Wu, “Vehicular Networking enabled Vehicle State Prediction via Two-level Quantized Adaptive Kalman Filtering”, IEEE Internet of Things Journal (DOI 10.1109/JIOT.2020.2983332)
- [J31] H. Zhou, X. Peng, B. Qian, F. Lyu, **W. Xu**, “Enabling Security-Aware D2D Spectrum Resource Sharing for Connected Autonomous Vehicles”, IEEE Internet of Things Journal, vol. 7, no. 5 (2020), pp.3799–3811
- [J32] C. Hua, **W. Xu**, P. Gu, “Optimal Power Allocation for Non-orthogonal Multiple Access in Wireless Backhaul Networks”, IET Communications, 2020
- [J33] P. Gu, C. Hua, **W. Xu**, R. Khatoun, Y. Wu, A. Serhrouchni, “Control Channel Anti-Jamming in Vehicular Networks via Cooperative Relay Beamforming”, IEEE Internet of Things Journal, 2020 Feb 13;7(6):5064-77.
- [J34] H. Wu, J. Chen, **W. Xu**, N. Cheng, W. Shi, L. Wang, X. Shen “Delay-Minimized Edge Caching in Heterogeneous Vehicular Networks: A Matching-Based Approach”, IEEE Transactions on Wireless Communication, accepted
- [J35] F. Lyu, N. Cheng, H. Zhu, H. Zhou, **W. Xu**, M. Li, X. Shen “Towards Rear-End Collision Avoidance: Adaptive Beaconing for Connected Vehicles”, IEEE Transactions on Intelligent Transportation Systems, accepted
- [J36] F. Lyu, H. Zhu, N. Cheng, H. Zhou, **W. Xu**, M. Li, X. Shen “Characterizing Urban Vehicle-to-Vehicle Communications for Reliable Safety Applications”, IEEE Transactions on Intelligent Transportation Systems, early access (DOI 10.1109/TITS.2019.2920813)
- [J37] N. Cheng, **W. Xu**, W. Shi, Y. Zhou, N. Lu, H. Zhou, X. Shen “Air-ground integrated mobile edge networks: Architecture, challenges, and opportunities”, IEEE Communications Magazine, vol.56, no.8, pp.26–32, 2018
- [J38] W. Shi, J. Li, **W. Xu**, H. Zhou, N. Zhang, S. Zhang, X. Shen “Multiple drone-cell deployment analyses and optimization in drone assisted radio access networks”, IEEE Access, vol.6, pp.12518–12529, 2018
- [J39] W. Shi, H. Zhou, J. Li, **W. Xu**, N. Zhang X. Shen “Drone assisted vehicular networks: Architecture, challenges and opportunities”, IEEE Network, vol.32, no.3, pp.130–137, 2018
- [J40] F. Lyu, N. Cheng, H. Zhou, **W. Xu**, W. Shi, J. Chen, M. Li, X. Shen “DBCC: Leveraging Link Perception for Distributed Beacon Congestion Control in VANETs”, IEEE Internet of Things Journal, vol.5, no.6, pp.4237–4249, 2018
- [J41] N. Cheng, F. Lyu, J. Chen, **W. Xu**, H. Zhou, S. Zhang, X. Shen “Big data driven vehicular networks”, IEEE Network, vol.32, no.6, pp.160–167, 2018 (**Highly cited paper**)
- [J42] F. Lyu, N. Cheng, H. Zhu, H. Zhou, **W. Xu**, M. Li, X. Shen “Intelligent context-aware communication paradigm design for IOVs based on data analytics”, IEEE Network, vol.32, no.6, pp.74–82, 2018
- [J43] F. Lyu, H. Zhu, H. Zhou, L. Qian, **W. Xu**, M. Li, X. Shen “MoMAC: mobility-aware and collision-avoidance MAC for safety applications in VANETs”, IEEE Transactions on Vehicular Technology, vol.67, no.11, pp.10590–10602, 2018

- [J44] H. Zhou, **W. Xu**, Y. Bi, J. Chen, Y. Quan, X. Shen “Toward 5G spectrum sharing for immersive-experience-driven vehicular communications”, *IEEE Wireless Communications*, vol.24, no.6, pp.30–37, 2017
- [J45] F. Lyu, H. Zhu, H. Zhou, **W. Xu**, N. Zhang, M. Li, X. Shen “SS-MAC: A novel time slot-sharing MAC for safety messages broadcasting in VANETs”, *IEEE Transactions on Vehicular Technology*, vol.67, no.4, pp.3586–3597, 2017
- [J46] J. Chen, H. Zhou, N. Zhang, **W. Xu**, Q. Yu, L. Gui, X. Shen “Service-oriented dynamic connection management for software-defined internet of vehicles”, *IEEE Transactions on Intelligent Transportation Systems*, vol.18, no.10, pp.2826–2837, 2017
- [J47] Y. Bi, H. Zhou, **W. Xu**, X. Shen, H. Zhao, “An efficient PMIPv6-based handoff scheme for urban vehicular networks”, *IEEE transactions on intelligent transportation systems*, vol.17, no.12, pp.3613–3628, 2016

### Conference Papers

- [C1] **W. Xu**, H. Wan, N. Cheng, H. Zhou, M. Qin, ‘A Practical Fast Model Inference System Over Tiny Wireless Device’, accepted in 2023 International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)
- [C2] J. Zhang, X. Ma, S. Guo, **W. Xu**, ‘Towards Unbiased Training in Federated Open-world Semi-supervised Learning’, accepted in International Conference on Machine Learning (ICML), 2023
- [C3] J. Li, L. Lang, Z. Zhu, H. Wang, R. Li, **W. Xu**, ‘Decompose, Then Reconstruct: A Framework of Network Structures for Click-Through Rate Prediction’, accepted to ECML/PKDD 2023
- [C4] Q. Chen, S. Guo, **W. Xu**, J. Li, T. Shi, Z. Cai, H. Gao, ‘Optimizing Average AoI with Directional Charging for Wireless-Powered Network Edge’, accepted in The IEEE/ACM International Symposium on Quality of Service 2023 (IWQoS 2023)
- [C5] H. Wang, Y. Li, **W. Xu**, R. Li, Y. Zhan, Z. Zeng, ‘DaFKD: Domain-aware Federated Knowledge Distillation’, accepted in IEEE/CVF Conference on Computer Vision and Pattern Recognition(CVPR) 2023
- [C6] Y. Fan, **W. Xu**, H. Wang, J. Wang, S. Guo, ‘PMR: Prototypical Modal Rebalance for Multimodal Learning’, accepted in IEEE/CVF Conference on Computer Vision and Pattern Recognition(CVPR) 2023
- [C7] J. He, N. Cheng, Z. Yin, H. Zhou, **W. Xu**, H. Peng, C. Zhou, R. Zhang, ‘Service-Oriented Resource Allocation in SDN Enabled LEO Satellite Networks’, accepted in 2023 International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)
- [C8] J. Shen, N. Cheng, Z. Yin, Y. FU, S. Guo, **W. Xu**, ‘RingSFL: An Adaptive Federated Learning System for Heterogeneous Clients’ in IEEE/CIC International Conference on Communications in China (ICCC), 2023
- [C9] Z. Lu, J. Bao, X. Xie, **W. Xu**, C. Hua, ‘Non-Inducible RF Fingerprint Hiding via Feature Perturbation’, acceted in IEEE ICC, 2023
- [C10] H. Wang, **W. Xu**, Y. Fan, R. Li, P. Zhou, ‘AOCC-FL: Federated Learning with Aligned Overlapping via Calibrated Compensation’, accepted in INFOCOM 2023
- [C11] Q. Chen, S. Guo, **W. Xu**, Z. Cai, L. Cheng, H. Gao, “AoI Minimization Charging at Wireless-Powered Network Edge”, In Proc. IEEE ICDCS, pp. 713-723, 2022
- [C12] L. Wu, S. Guo, Y. Liu, Z. Hong, Y. Zhan, **W. Xu**, “Sustainable Federated Learning with Long-term Online VCG Auction Mechanism”, In Proc. IEEE ICDCS, pp. 895-90, 2022
- [C13] Z. Ren, N. Cheng, R. Sun, X. Wang, N. Lu, **W. Xu**, “SigT: An Efficient End-To-End MIMO-OFDM Receiver Framework Based on Transformer”, accepted in Proc. IEEE ICCSPA’22
- [C14] Y. Zhu, C. Hua, D. Zhong, **W. Xu**, “Design of Low-latency Overlay Protocol for Blockchain Delivery Networks”, In 2022 IEEE Wireless Communications and Networking Conference (WCNC), pp. 1182-1187, 2022.
- [C15] X. Ma, J. Zhang, S. Guo, **W. Xu**, “Layer-wised Model Aggregation for Personalized Federated Learning”, In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), pp. 10092-10101, 2022.
- [C16] J. Zhang, S. Guo, X. Ma, H. Wang **W. Xu**, F. Wu, “Parameterized Knowledge Transfer for Personalized Federated Learning”, *Advances in Neural Information Processing Systems (NeurIPS)* 34 (2021).
- [C17] H. Dong, C. Hua, L. Liu, **W. Xu**, “Towards Integrated Terrestrial-Satellite Network via Intelligent Reflecting Surface”, In ICC 2021-IEEE International Conference on Communications, pp. 1-6. IEEE, 2021
- [C18] **W. Xu**, H. Zhou, N. Cheng, N. Lu, L. Xu, M. Qin, S. Guo, “Autonomous Rate Control for Mobile Internet of Things: A Deep Reinforcement Learning Approach”, in Proc. VTC-Fall 2020,

- [C19] **W. Xu**, H. Zhou, T. Yang, H. Wu, S. Guo, “Proactive Link Adaptation for Marine Internet of Things in TV White Space”, in Proc. ICC 2020
- [C20] X. Yang, C. Hua, P. Gu, **W. Xu**, “Joint Power Allocation for Non-orthogonal Multiple Access in Wireless Backhaul Networks”, in Proc. ICFC 2020
- [C21] Z. Xu, Y. Zhang, C. Fu, L. Liu, C. Chen, **W. Xu**, S. Guo, “Back Shape Measurement and Three-Dimensional Reconstruction of Spinal Shape Using One Kinect Sensor”, in Proc. ISBI 2020
- [C22] **W. Xu**, S. Guo, H. Zhou, S. Ma, M. Wu, “A Queueing Analysis of the Opportunistic Vehicle-to-Vehicle Communication”, in Proc. Globecom 2019
- [C23] **W. Xu**, C. Ma, S. Guo, H. Zhou “Efficient Rate Adaptation for 802.11af TVWS Vehicular Access via Deep Learning”, in Proc. Globecom 2019
- [C24] H. Cai, C. Hua, **W. Xu** “Design of Active Learning Framework for Collaborative Anomaly Detection”, in Proc. WCSP 2019
- [C25] **W. Xu**, H. Wu, J. Chen, H. Zhou, N. Cheng, X. Shen, “ViFi: Vehicle-to-Vehicle Assisted Traffic Offloading via Roadside WiFi Networks”, in Proc. Globecom 2018, pp.1–6
- [C26] H. Wu, **W. Xu**, J. Chen, L. Wang, X. Shen, “Matching-Based Content Caching in Heterogeneous Vehicular Networks”, in Proc. Globecom 2018, pp.1–6, **Best Paper Award**
- [C27] J. Chen, **W. Xu**, N. Cheng, H. Wu, S. Zhang, X. Shen, “Reinforcement Learning Policy for Adaptive Edge Caching in Heterogeneous Vehicular Network”, in Proc. Globecom 2018, pp.1–6
- [C28] W. Shi, J. Li, **W. Xu**, H. Zhou, N. Zhang X. Shen, “3D drone-cell deployment optimization for drone assisted radio access networks”, in Proc. ICC 2017, pp.1–6
- [C29] **W. Xu**, H. Zhou, W. Shi, F. Lyu, X. Shen, “Throughput analysis of in-vehicle internet access via on-road wifi access points”, in Proc. VTC-Fall 2017, , pp.1–5
- [C30] **W. Xu**, Y. Wu, H. Zhou, Y. Bi, N. Cheng, X. Shen, “Ti-Fi: Terminal-to-terminal communication incorporated Wi-Fi offloading”, in Proc. WCSP 2016, pp.1–5
- [C31] **W. Xu**, C. Hua, A. Huang, “Channel assignment and user association game in dense 802.11 wireless networks”, in Proc. ICC 2011, pp.1–5
- [C32] **W. Xu**, C. Hua, A. Huang, “A game theoretical approach for load balancing user association in 802.11 wireless networks”, in Proc. Globecom 2010, pp.1–5
- [C33] X. Ding, C. Hua, **W. Xu**, A. Huang, “A measurement study of channel dynamics in wireless mesh networks”, in Proc. WCSP 2009