Wenchao Xu

Department of Computing,

The Hong Kong Polytechnic University 11 Yuk Choi Rd, Hung Hom, Hong Kong

Email: [wenchao.xu@polyu.edu.hk](mailto:wenchao.xu@polyu.edu.hk) Phone: +852 5600 6680

https://scholar.google.ca/citations?user=xaTK57QAAAAJ&hl=en

# 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** University of Waterloo, Waterloo, Ontario, Canada Supervisor: Professor Xuemin (Sherman) Shen GPA: 90/100   Thesis: Performance Analysis of Drive-thru Internet Access | **Sep. 2014—Sep.** | **2018** |
| * **Master of Engineering, Information and Communication Engineering**   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 | **Sep. 2008—Mar.** | **2011** |

## 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, ICCC, 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 ICCC 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

– ICCC, 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 Net- works”, 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 Communica- tions 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: Archi- tecture, 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 Heteroge- neous 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 Proceed- ings 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 Communica- tion’, 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. ICCC 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