Dongyu Wei

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Research Summary

I build secure and high-performance wireless systems for distributed AI at the edge, unifying privacy-preserving distributed learning with cross-layer optimization. I use multi-agent RL and semantic communications to make edge training resilient, spectrum/energy-efficient, and trustworthy.

Education

- **University of Miami, Coral Gables, USA** Aug 2024 – Jun 2028 (Expected)
  Ph.D. in Electrical and Computer Engineering
  Supervisor: Prof. Mingzhe Chen (IEEE Senior Member)
- **University of Washington, Seattle, USA** Sep 2022 – Jun 2024
  M.S. in Electrical and Computer Engineering
- **Huazhong University of Science and Technology, Wuhan, China** Sep 2018 – Jun 2022
  B.E. in Electrical Engineering

Research Experience

- **Research Assistant**, University of Miami, FL, USA Aug 2024 – Present
  - Conduct research on wireless communication systems and secure distributed learning frameworks.
  - Design and implement algorithms to enhance spectrum efficiency and enable privacy-preserving AI model training.
  - Evaluate system performance through large-scale simulations and data analysis using Python and MATLAB.

Publications

Peer-reviewed Journal and Conference Papers (Accepted/Published)

1. **D. Wei**, X. Xu, Y. Liu, H.V. Poor, and M. Chen, "Optimizing Model Splitting and Device Task Assignment for Deceptive Signal Assisted Multi-hop Split Learning," in *IEEE Journal on Selected Areas in Communications*.
2. **D. Wei**, X. Xu, S. Mao, and M. Chen, "Optimizing Communication and Device Clustering for Clustered Federated Learning with Differential Privacy," in *IEEE Transactions on Mobile Computing*, 2025.
3. **D. Wei**, L. Cao, L. Zhang, X. Gao, and H. Yin, "Non-Primary Channel Access in IEEE 802.11 UHR: Comprehensive Analysis and Evaluation," in *IEEE 100th Vehicular Technology Conference (VTC-Fall)*, Washington, DC, USA, Oct. 2024.
4. **D. Wei**, L. Cao, L. Zhang, X. Gao, and H. Yin, "Optimized Non-Primary Channel Access Design in IEEE 802.11bn," in *IEEE Global Communications Conference (GLOBECOM)*, Cape Town, South Africa, Dec. 2024.
5. **D. Wei**, H. Yu, Y. Liu, S. Mao, and M. Chen, "Joint Optimization of Communication and Device Clustering for Secure Clustered Federated Learning," in *IEEE International Conference on Communications (ICC)*, Montreal, Canada, Jun. 2025.

6. **D. Wei**, Y. Liu, and M. Chen, "Joint Optimization of Model Splitting and Device Task Assignment for Private Multi-hop Split Learning," in *IEEE Conference on Information Sciences and Systems (CISS)*, Baltimore, MD, USA, Mar. 2025.
7. L. Zhang, L. Cao, Z. Chen, **D. Wei**, M. Chen, V. Sathya, and S. Mao, "Wi-Fi 8 Coordinated Beamforming: A Cross-layer Approach towards Optimized Access Point Cluster Formation," in *IEEE Transactions on Wireless Communications*, 2026.
8. X. Xu, H. Xu, **D. Wei**, W. Saad, M. Bennis, and M. Chen, "Fluid Antenna System and Other Next-Generation Reconfigurable Antenna Systems for Wireless Communications," in *IEEE Journal on Selected Areas in Communications*, 2025.
9. L. Zhang, L. Cao, **D. Wei**, M. Chen, Z. Chen, and S. Cui, "Cross-Layer Channel Sounding Optimization Towards Next-Gen Wi-Fi: From Model Driven to Data Driven," in *IEEE Transactions on Wireless Communications*, 2025.
10. L. Zhang, L. Cao, **D. Wei**, and X. Gao, "Scheduling in IEEE 802.11be Multi-Link Operation for Low Latency and High Reliability," in *IEEE Transactions on Green Communications and Networking*, 2025.
11. X. Gao, H. Yin, Y. Sun, **D. Wei**, X. Xu, H. Chen, W. Wu, and S. Cui, "Multi-Level Feature Transmission in Dynamic Channels: A Semantic Knowledge Base and Deep Reinforcement Learning-Enabled Approach," in *IEEE Internet of Things Journal*, 2024.
12. D. Zhou, **D. Wei**, Y. Hu, S. Li, and M. Chen, "Semantic Communication Performance Optimization with Channel and Content Preference Feedbacks," in *IEEE International Conference on Communications (ICC)*, Glasgow, Scotland, UK, Jun. 2026.
13. L. Zhang, Y. Jia, L. Cao, **D. Wei**, M. Chen, and V. Sathya, "A Model Driven Optimization Toward Next-Generation Multi-AP Coordinated Spatial Reuse," in *IEEE International Conference on Communications (ICC)*, Glasgow, Scotland, UK, Jun. 2026.
14. L. Cao, W. Wang, Q. Xie, **D. Wei**, and L. Zhang, "SALT-V: Lightweight Authentication for 5G V2X Broadcasting," in *IEEE International Conference on Communications (ICC)*, Glasgow, Scotland, UK, Jun. 2026.
15. L. Zhang, L. Cao, **D. Wei**, M. Chen, Z. Chen, and V. Sathya, "Cross-Layer Channel Sounding Optimization Towards Next-Gen Wi-Fi," in *IEEE Consumer Communications & Networking Conference (CCNC)*, Las Vegas, NV, USA, Jan. 2026.
16. X. Xu, **D. Wei**, Y. Hu, Z. Yang, H. Guo, and M. Chen, "Joint Trajectory and Antenna Port Selection Optimization for Fluid Antenna System-enabled Resilient UAV Networks," in *IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, Dec. 2025.
17. S. Yang, **D. Wei**, H. Yu, Z. Yang, Y. Liu, and M. Chen, "Contrastive Language–Image Pre-Training Model based Semantic Communication Performance Optimization," in *IEEE Global Communications Conference (GLOBECOM)*, Taipei, Taiwan, Dec. 2025.
18. X. Gao, Y. Sun, **D. Wei**, X. Xu, H. Chen, H. Yin, and S. Cui, "Learning for Semantic Knowledge Base-Guided Online Feature Transmission in Dynamic Channels," in *IEEE International Conference on Communications (ICC)*, Denver, CO, USA, 2024.

Under Review / Revision

1. **D. Wei**, J. Yao, Y. Liu, S. Mao, and M. Chen, "Joint Optimization of Federated Learning and Unlearning over Wireless Networks," submitted to *IEEE Journal on Selected Areas in Communications*.
2. **D. Wei**, D. Zhou, Y. Liu, and M. Chen, "Resilient Multi-hop Split Learning with Device Assignment and Sub-model Splitting Optimization," under major revision for *IEEE Transactions on Wireless Communications*.
3. **D. Wei**, H. Yu, Y. Liu, S. Mao, and M. Chen, "Joint Optimizing Federated Learning and Unlearning over Wireless Networks," submitted to *IEEE International Symposium on Information Theory (ISIT)*, Guangzhou, China, Jun. 2026.
4. D. Zhou, **D. Wei**, S. Li, and M. Chen, "Optimization of Collaborative Semantic Communication Network Performance with Channel and Content Preference Feedback," submitted to *IEEE Transactions*

on Wireless Communications.

5. J. Yao, **D. Wei**, and M. Chen, "Joint Optimization of Movable Antenna Positions, Beamforming, and UAV Deployment for Sensing Resilient UAV Communications," submitted to *IEEE Journal on Selected Areas in Communications*.
6. X. Xu, **D. Wei**, L. Zhu, Y. Liu, W. Saad, and M. Chen, "Joint Trajectory, Antenna Position, and Beamforming Optimization for Movable Antenna-enabled Resilient UAV Networks," submitted to *IEEE Journal on Selected Areas in Communications*.
7. L. Zhang, G. Zhu, **D. Wei**, Y. Hu, Y. Jia, and D. Niyato, "Beam, Reuse, or Time Slice? A Model and Data Driven Optimization Framework for Wi-Fi 8 Tri-Mode Selection," under major revision for *IEEE Transactions on Mobile Computing*.

Skills and Services

- **Programming:** Matlab, Python, LaTeX, C/C++, Java
- **Reviewer:**
  - IEEE Journal on Selected Areas in Communications
  - IEEE Transactions on Neural Networks and Learning Systems
  - IEEE Transactions on Mobile Computing
  - IEEE Transactions on Communications
  - IEEE Transactions on Cognitive Communications and Networking
  - IEEE Transactions on Dependable and Secure Computing
  - IEEE Transactions on Artificial Intelligence
  - IEEE Transactions on Green Communications and Networking
  - IEEE Transactions on Machine Learning in Communications and Networking
  - IEEE Internet of Things Journal
  - IEEE Communications Magazine
  - IEEE Wireless Communications Letters
  - IEEE International Conference on Communications (ICC)
  - IEEE Global Communications Conference (GLOBECOM)
  - IEEE INFOCOM Workshops
  - IEEE Consumer Communications & Networking Conference (CCNC)
  - ACM Transactions on Internet of Things
  - ACM ASIACCS Workshops
  - Elsevier Computer Networks (COMNET)
- **Professional Service:**
  - Technical Program Committee (TPC) Member, *IEEE Vehicular Technology Conference (VTC) 2026-Spring*
  - Technical Program Committee (TPC) Member, *IEEE Vehicular Technology Conference (VTC) 2026-Fall*
  - Technical Program Committee (TPC) Member, *IEEE International Conference on Communications (ICC) 2026*

References

- **Dr. Mingzhe Chen (Ph.D. Advisor)**
  Assistant Professor, IEEE Senior Member
  Department of Electrical and Computer Engineering, University of Miami
  Email: mingzhe.chen@miami.edu