FANGTONG ZHOU

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EDUCATION

Virginia Tech, Blacksburg, VA, USA *2024.8 - present*

- Ph.D. in Computer Engineering
- GPA: 4.0/4.0
- Advisor: Prof. Tom Hou

ShanghaiTech University, Shanghai, China *2021.9 - 2024.6*

- M.S. in Information Engineering
- GPA: 3.78/4.0
- Advisor: Prof. Yang Yang, Prof. Yong Zhou

South China University of Technology, Guangzhou, China *2017.9 - 2021.6*

- B.Eng. in Information Engineering
- GPA: 3.75/4.0 (89.00/100)
- Ranking: 8/233

RESEARCH EXPERIENCE

- **AirComp-assisted Hierarchical Personalized Federated Learning** [1][4] **2022.6 - 2024.6**
  - Proposed an AirComp-assisted hierarchical personalized FL that simultaneously learns global and personalized models while mitigating interference through cloud/edge beamforming design, significantly improving convergence and accuracy in heterogeneous wireless networks
- **Edge Interval Control in Hierarchical Federated Learning** [2] **2023.3 - 2023.6**
  - Developed an AirComp-assisted hierarchical FL that jointly optimizes edge aggregation intervals and device transceiver design via relaxation–rounding and Lyapunov-based algorithms, achieving faster convergence and higher accuracy under wireless communication constraints
- **Decentralized Satellite Federated Learning** [5][7] **2023.6 - 2024.6**
  - Introduced a multi-orbit decentralized satellite FL framework that leverages intra- and inter-orbit ISLs for model aggregation without ground stations, analyzes convergence to guide local iteration settings, and develops a JRARS algorithm for joint routing, bandwidth, and power optimization, achieving faster convergence and lower energy consumption in LEO constellations
- **WOS** [6][8] **2025.1 - 2025.6**
  - Proposed Wait-for-Optimal-Set (WOS), a semi-asynchronous FL scheme that adaptively selects clients based on computation latency and model-version gap while employing dynamic resource block allocation, achieving faster convergence and higher accuracy than existing methods in dynamic wireless networks
- **FedHusky** [9] **2025.6 - 2025.9**
  - Proposed FedHusky, an FL system that employs a calendar-based client scheduling, optimization-driven group formation, and dynamic birth–death processes to maximize client utilization, significantly improving convergence speed and training efficiency under small and heterogeneous datasets

PUBLICATIONS

[1] **F. Zhou**, Z. Wang, X. Luo, and Y. Zhou, **"Over-the-air computation assisted hierarchical personalized federated learning,"** in Proc. IEEE International Conference on Communications (ICC), Rome, Italy, May 2023.

[2] **F. Zhou**, X. Chen, H. Shan, and Y. Zhou, **"Adaptive Transceiver Design for Wireless Hierarchical Federated Learning,"** in Proc. IEEE 98th Vehicular Technology Conference (VTC2023-Fall), Hong Kong, China, Oct. 2023.

[3] L. Wu, G. Gao, J. Yu, **F. Zhou**, Y. Yang, and T. Wang, **"Pdd: Partitioning dag-topology dnns for streaming tasks,"** IEEE Internet of Things Journal, vol. 11, no. 6, pp. 9258–9266, Mar. 2024.

[4] **F. Zhou**, Z. Wang, H. Shan, L. Wu, and Y. Zhou, **"Over-the-Air Hierarchical Personalized Federated Learning,"** IEEE Transactions on Vehicular Technology, vol. 74, no. 3, pp. 5006–5021, Mar. 2025.

[5] **F. Zhou**, Z. Wang, Y. Shi, and Y. Zhou, **"Decentralized Satellite Federated Learning via Intra- and Inter-Orbit Communications"** in Proc. IEEE International Conference on Communications Workshops (ICC Wcshps), Denver, CO, USA, Jun. 2024.

[6] **F. Zhou**, Y. Shi, Y. Wu, S. Archarya, L. DaSilva, S. Kompella, W. Lou, and Y. T. Hou **"WOS: An Optimized Scheduling Scheme for Federated Learning in Dynamic Wireless Networks,"** in Proc. IEEE Military Communications Conference (MILCOM), Los Angeles, CA, USA, Oct. 2025.

[7] **F. Zhou**, Y. Zhou, T. Wang, Y. Shi, C. Jiang, and H. Hu **"Decentralized Satellite Federated Learning via Multi-Orbit Collaboration,"** submitted to IEEE Transactions on Wireless Communications. (Under Review)

[8] **F. Zhou**, Y. Shi, Y. Wu, S. Archarya, L. DaSilva, S. Kompella, W. Lou, and Y. T. Hou **"WOS+: Wait-for-Optimal-Set for Wireless Federated Learning"**. submitted to IEEE Journal on Selected Areas in Communications. (Under Review)

[9] **F. Zhou**, Y. Shi, W. Lou, and Y. T. Hou **"FedHusky: Accelerating Hybrid Federated Learning with Client Hopping,"** submitted to International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt), Columbus, Ohio, USA, June 2026. (Under Review)

TEACHING ASSISTANT

ShanghaiTech University
CS 287: Network Intelligence, Fall 2022

Virginia Tech
ECE 2714: Signals and Systems, Fall 2024 & Spring 2025

SKILLS

- **Programming**
  Python, Matlab
- **Languages**
  - Chinese (Native)
  - English (IELTS: 7.5; -Reading 7.5; -Listening 8.5; -Speaking 8.0; -Writing: 6.5)