

Lizhao Wu

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EDUCATION

Fujian Normal University

M.E. in Cyberspace Security.

Fujian, Fuzhou

May 2025

North China University of Science and Technology

B.E. in Intelligent Science and Technology.

Hebei, Tangshan

May 2022

PUBLICATION

Journal

- **L. Wu**, H. Lin, X. Wang, "Federated Training Generative Adversarial Networks for Heterogeneous Vehicle Scheduling in IoV," *IEEE Internet of Things Journal* (Impact factor: 8.2), Accepted, 2024.
- **L. Wu**, X. Wang, T. Xu, Y. Que, and H. Lin, "Research on Defense Methods Against Poisoning Attacks for Semi-Asynchronous Federated Learning," *Information Network Security* (Impact factor: 1.16), 10(10), 1578-1585, 2024.
- **L. Wu**, T. Zhou, Y. Lai, H. Lin, J. Hu, "Personalized Asynchronous Federated Learning for Intelligent Vehicular Computing," *IEEE Transactions on Consumer Electronics* (Impact factor: 4.3), doi: 10.1109/TCE.2025.3534468.
- J. Liu, H. Lin, X. Wang, **L. Wu**, et.al, "Reliable trajectory prediction in scene fusion based on spatio-temporal Structure Causal Model," *Information Fusion* (Impact factor: 14.8), 107, 102309, 2024.
- **L. Wu**, X. Wang, H. Lin, et.al, "Toward Personalized Federated Meta-learning with Constrained Hypernetwork on Non-IID Data," *IEEE Transactions on Computers* (Impact factor: 3.6), under review.
- **L. Wu**, H. Lin, J. Hu, "FedTAS: Trusted Adaptive Semi-asynchronous Federated Learning for Heterogeneous Clients" *IEEE Transactions on Dependable and Secure Computing* (Impact factor: 7), under review.
- L. Peng, L. Xu, X. Wang, **L. Wu**, et.al, "An Autonomous AI Framework for Knee Osteoarthritis Diagnosis via Semi-Supervised Learning and Dual Knowledge Distillation," in *IEEE Journal of Biomedical and Health Informatics*, under review.
- Y. Lai, **L. Wu***, H. Lin, "Bad-MFL: A Cross-Modality Bi-Trigger Backdoor Attack against Multi-Modal Federated Learning," *IEEE Internet of Things Journal*, under review.

Conference

- B.Ye, L. Xu, X. Wang, **L. Wu**, et.al, "FedHAN: A Cache-Based Semi-Asynchronous Federated Learning Framework Defending Against Poisoning Attacks in Heterogeneous Clients" in *IJCAI2025*
- Y. Lai, **L. Wu**, H. Lin, X. Zhou, "Defending Against Backdoor Attacks through Causality-Augmented Diffusion Models for Dataset Purification," in *IEEE TrustCom 2024*.
- T. Chen, H. Lin, **L. Wu**, and X. Wang, "Optimized Block-K Clustering IoT Clustering and Blockchain Sharding Strategy Using Deep Reinforcement Learning," in *IEEE CyberSciTech 2024*.
- R. Gao, C. Zhang, **L. Wu**, et.al, "Weighted Network Overlapping Community Detection Algorithm Based on Set Pair K-means Clustering," in *the 37th CCF China National Database Conference(NDBC 2020)*.
- G. Chen, **L. Wu**, H.Lin, Z. Zhou, "LOHA: Hypergraph Masked Autoencoder for Advanced Persistent Threat Detection" in the 27th International Conferences on High Performance Computing and Communications (HPCC 2025).
- Z. Lin, **L. Wu**, H.Lin, "Blockchain-based Multimodal Semantic Sharding System for Digital Copyright utilizing Graph Clustering" in the 27th International Conferences on High Performance Computing and Communications (HPCC 2025).

PATENTS

- X. Wang, Y. Que, L. Xu, M. Zhao, Q. Wu, **L. Wu**, "A Trustworthy Semi-Asynchronous Federated Learning Method with Heterogeneous Clients," Chinese Patent, CN202410655007.0, August 30, 2024.
- X. Wang, Y. Que, H. Lin, **L. Wu**, K. Jin, "A Prototype Adversarial Method for Heterogeneous Federated Learning Based on Generators," Chinese Patent, CN202311755773.6, March 29, 2024.
- X. Wang, Y. Que, L. Zhang, Z. Zhen, J. Liu, **L. Wu**, "A Crowdsourcing Logistics Method Based on Digital Twin and Evolutionary Game Theory," Chinese Patent, CN202311166639.2, January 02, 2024.

RESEARCH EXPERIENCE

Robust and Efficient AI model in Federated Learning

Sep. 2022 – Present

Fujian Normal University

College of Computer and Cyber Security

- I designed a constrained hypernetworks to learn gradient info of each client in federated meta-learning , then generating personalized meta-models to them which enhances client and global model generalization performance in heterogeneous data.
- I proposed a federated learning framework supporting asynchronous communication and heterogeneous models, robust to poisoning attacks, which also applies the Cauchy Mean Value Theorem to resolve feature confusion, improving malicious client detection.
- I implemented the Heterogeneous Vehicle Scheduling GAN framework for GAN model deployment in resource-limited IoT Vehicles. Supports diverse connected vehicles running tailored GAN models according to their resources. Ensures collaboration among these models for global GAN model optimization.

Community Detection in Complex Network

June 2020 – 2022

North China University of Science and Technology

College of Science

- I developed a new node similarity measure for overlapping community detection in complex networks and applied K-means with improved initial value selection to partition the network into a tripartite structure. Then I divided communities based on node similarity calculations within the positive, boundary, and negative domains.

AWARD

- **First Prize in 13-th National College Mathematics Contest.** December 2021
- University-level Mathematics Competition for Students at North China University of Science and Technology. September 2021
- College-level Third-Class Scholarship. 2021
- Bronze Award in the 11th "Internet+" College Students Innovation and Entrepreneurship Competition of Fujian Normal University. 2025

OPEN SOURCE EXPERIENCE

Package the Python Geojson library for Huawei's OpenEuler System

June 2021

- Modify the .spec files in the OpenSuse and Redhat communities to introduce the python-geojson package into the openEuler repository, thereby enriching the software package ecosystem of the community.

Contributor to the "Linux.Cn Translation Team" open source project on GitHub

July 2021

- LCTT is a GitHub open source project (with 2.3k Stars) that focuses on sharing Linux-related information in China. I am responsible for assisting in the operation of the LCTT project, participating in tasks such as article selection, proofreading, translation, and more.

SKILLS

- Programming language: Python, C/C++, CUDA, Git, LaTeX, Vim.
- Software: Linux, Tensorflow, Pytorch, Docker, OpenCV.
- Mathematics: Convex optimization, Advanced Mathematics, Linear Algebra.

INTERESTS AND HOBBIES

I have persistently practiced basketball for 10 years, participating in numerous competitions and serving as the captain of the college basketball team in 2023. My award-winning experiences include:

- Runner-up in the 2018 Freshmen Basketball Tournament at North China University of Science and Technology.
- Fourth place in the 11th U20 Youth Basketball Tournament of the community in 2020.
- Champion of the 16th "Jian Gong Cup" Basketball Game of North China University of Science and Technology in 2020.
- Third place in the 2022 Basketball Tournament of the College of Computer Science and Cyberspace Security at Fujian Normal University.
- Fourth place in the 2023 Graduate Basketball Tournament at Fujian Normal University.