Hongyi Chen

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Education Background

Xiamen University, Xiamen, China 2023.9 – Present

M.S. Artificial Intelligence, Expected to graduate in 2026.6 Supervisor: *Prof. Liang Xiao (IEEE Fellow)*

- Cumulative GPA : 91.9/100 3.95/4.0
- Ranking : 1/92

Fujian Normal University, Fuzhou, China 2019.9 – 2023.6

B.Eng. Computer Science

- Cumulative GPA : 88.5/100 3.77/5.0
- Ranking : 6/200 Top 3 %

Research Interests

AI for Communications, Collaborative Vehicular Perception, Anti-Jamming Communications, Edge Computing

Research Experience

Project 1: Research on reliable and trusted communication and networking for smart ocean (The Key Program of the National Natural Science Foundation of China)

Master's Researcher 2023.9 – Present

- Proposed a reinforcement learning (RL)-based anti-jamming collaborative vehicular perception scheme to optimize sensing data region selection, power control, and channel allocation based on the spatial confidence of feature maps, data volume, channel gain, and jamming signal strength to enhance perception accuracy and speed.
- Proposed a collaborative vehicular perception scheme against data fabrication attacks, which designed a spatial verification scheme to detect faked sensing data by constructing region occupancy maps based on point cloud density, with hypothesis testing statistics based on the number of conflicting regions and further designed a RL-based CAV selection mechanism to choose the benign collaborators with high-quality data to enhance perception accuracy and reduce latency.
- Proposed a RL-based environment-aware anti-jamming vehicular communication scheme to choose radio channel and power based on the environmental features including traffic density and building layouts that indicate future channel gain and received signal strength under urban areas with multi-source interference and smart jamming to enhance SINR, energy consumption and frequency-hopping costs.
- Designed and implemented a collaborative vehicular perception system based on 10 Unmanned Ground Vehicles equipped with LiDAR and NVIDIA-Jetson computing units and a USRP controlled via GNU Radio to generate Gaussian white noise as jamming signal to verify the performance gain of proposed schemes.

Project 2: AI aided anti-jamming communications for UAV (The General Program of National Natural Science Foundation of China)

Project leader of UAV Intelligent Anti-jamming Communication System 2022.9 – Present

- Designed and implemented a Python based frame for non-blocking, multi-process and multi-threaded UDP transmission and reception framework for the multi-modal data (i.e., video, image and control commands), along with a TCP-based performance feedback framework for reward calculation of reinforcement learning.
- Deployed seven multi-agent renforcement learning (MARL) algorithms on UAVs equipped with Raspberry Pi to optimize the channel selection and power control against jamming.
- Performance evaluation on the proposed system shows that our proposed MARL algorithms reduces transmission latency by at least 20% and communication interruption rate by at least 15%.

Selected Publications&manuscripts

[1] **H. Chen**, Z. Lin, Y. Zhu, J. Li, L. Xiao, Y. Tang, Y. Zhang, "Reinforcement Learning Based Collaborative Perception for Vehicular Networks," *IEEE GLOBECOM*, 2024.

[2] Z. Lin, L. Xiao, **H. Chen**, Z. Lv, Y. Zhu, Y. Zhang, Y. Liu, "Edge-Assisted Collaborative Perception Against Jamming and Interference in Vehicular Networks," *IEEE Transactions on Wireless Communications*, 2025.

[3] Z. Lin, L. Xiao, **H. Chen**, Z. Lv, "Collaborative Perception Against Data Fabrication Attacks in Vehicular Networks," *IEEE Transactions on Mobile Computing*, 2025.

[4] Z. Lin, L. Xiao, **H. Chen**, Z. Lv, "Reinforcement Learning Based Environment-Aware V2I Anti-Jamming Communications," *IEEE Transactions on Vehicular Technology*, 2025.

[5] Z. Lin, **H. Chen**, L. Xiao, X. Xu, J. Li, "Collaborative Inference for Large Language Models with Multi-Modal Data Against Jamming Attacks," *Journal of Electronics & Information Technology* (Chinese-language), 2025.

[6] Z. Lin, **H. Chen**, L. Xiao, Z. Lv, L. Ye, "RLCVP: Collaborative Vehicular Perception Against Data Fabrication Attacks," submitted to *IEEE ICC*, 2026.

[7] Z. Lin, L. Xiao, **H. Chen**, X. Xu, J. Li, "Collaborative LLM Inference for Wireless Applications Against Jamming Attacks," *IEEE Transactions on Wireless Communications* (Under Review).

Patents

[1] L. Xiao, **H. Chen**, Z. Lin, "Collaborative Vehicular Perception Data Anti-Jamming Transmission Method for High-Precision Object Detection," Chinese Patent, Published.

[2] L. Xiao, **H. Chen**, Z. Lin, X. Xu, J. Li, "Multi-Modal Large Language Models Based Anti-Jamming Collaborative Inference Method for Intelligent Terminals," Chinese Patent, Published.

Selected Awards and Honors

20th China Post-Graduate Mathematical Contest in Modeling, *National First Prize (Top 1%)*	2024
38th International Mathematical Contest in Modeling, *Finalist Winner (Top 1%)*	2022
National Scholarship	2025
14th Chinese Mathematics Competitions, *Second Prize*	2022
The 13th Blue Bridge Cup National Programming Contest, *Second Prize*	2022
Ge Jiashu Scholarship of Xiamen University (Sole recipient from college)	2025
Excellent League Member of Xiamen University	2025
Merit Student of Xiamen University	2024, 2025
Outstanding Undergraduate Graduate	2023

Professional Activities

- Reviewer for IEEE TWC, IEEE TCOM, IEEE TVT, IEEE IoTJ, IEEE TMLCN, IEEE INFOCOM, USENIX Security, IEEE ICC and TPC member for ICC 2025, 2026
- Oral Presentation, IEEE GLOBECOM, Cape Town, South Africa, December 2024
- Assisted in the Keynote Speaker Presentation for multiple IEEE International Conferences, with acknowledgment in the speaker's presentation.
- Participated in applying for projects such as the NSFC Joint Fund Key Program and the NSFC General Program, including drafting project proposals, annual reports, and preparing defense materials.

Skills

- Programming Language: Python, Matlab, Java, C++, SQL
- Framework: PyTorch, OpenCV, Open3D, Pandas, Numpy, PyQt
- Language: Mandarin (Native), English: CET-6 (score 438), preparing for IELTS