# Zijian (Longino) ZHAO 赵子健

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## Education

**The Hong Kong University of Science and Technology (Clearwater Bay Campus, Hong Kong)** Sep. 2024 – Present
*Ph.D. in Civil Engineering (Scientific Computation)* *GPA: 3.85/4.2*
***Supervisor:*** *Prof. Sen Li*
***Main Research Direction:*** *Multi-Agent Reinforcement Learning, Deep Learning, Intelligent Transportation, Mobile Computing*

**Sun Yat-sen University (Guangzhou Campus)** Sep. 2020 – Jul. 2024
*B.Eng. in Computer Science and Technology (National Basic Subject Talent Training Plan)* *GPA: 4.0/5.0, Rank: Top 10%*
***Supervisors:*** *Prof. Kai Huang, Prof. Chengying Gao, Prof. Ning Liu*
***Main Research Direction:*** *Deep Learning, Domain Adaptation, Wireless Sensing, Music Information Retrieval, Robot Reinforcement Learning*
***Ranking First in:*** *Computer Programming, Principles of Compilers, Distributed Systems, Embedded Systems, Complex Variables, Mathematical Analysis, Advanced Algebra, Data Structures and Algorithms, Probability and Statistics, Discrete Mathematics*

## Experience

**Industry-University-Research Student** Feb. 2024 – Aug. 2024
*Likelihood Lab* *Online*
**Visiting Student** Aug. 2023 – Aug. 2024
*Shenzhen Research Institute of Big Data, The Chinese University of Hong Kong (Shenzhen)* *Supervisor: Prof. Guangxu Zhu*

## Publications

### A. Journal Papers:

[1] **Zijian Zhao**, Tingwei Chen, Zhijie Cai, Xiaoyang Li, Hang Li, Qimei Chen, Guangxu Zhu*, "CrossFi: A Cross Domain Wi-Fi Sensing Framework Based on Siamese Network", IEEE Internet of Things Journal (IOT-J), 2025 (JCR-Q1, CAS-Q2, Top, CCF-C) [Paper] [Code]

[2] Haolong Chen, Hanzhi Chen, **Zijian Zhao**, Kaifeng Han*, Guangxu Zhu*, Yichen Zhao, Ying Du, Wei Xu, Qingjiang Shi, "An Overview of Domain-specific Foundation Model: Key Technologies, Applications and Challenges", Science China Information Sciences (SCIS), 2025 (JCR-Q1, CAS-Q1, Top, CCF-A) [Paper]

### B. Conference Papers:

[1] **Zijian Zhao***, "Let Network Decide What to Learn: Symbolic Music Understanding Model Based on Large-scale Adversarial Pre-training", 2025 ACM International Conference on Multimedia Retrieval (ICMR), 2025 (CCF-B) [Paper] [Code] [Hugging Face]

[2] **Zijian Zhao**, Zhijie Cai, Tingwei Chen, Xiaoyang Li, Hang Li, Qimei Chen, Guangxu Zhu*, "Does MMD Really Align? A Cross Domain Wireless Sensing Method via Local Distribution", 2025 IEEE/CIC International Conference on Communications in China (ICCC), 2025 [ArXiv] [Code]

[3] **Zijian Zhao**, Sen Li*, "Multi-Agent Reinforcement Learning for Order Assignment and Payment Setting on Food-Delivery Platforms: The Implicit Algorithmic Biases", 2025 International Symposium on Transportation Data & Modelling (ISTDM), 2025 (also presented at BTR 2025) [Paper]

[4] Chuxue Cao, Mengze Li, Juntao Dai, Jinluan Yang, **Zijian Zhao**, Shengyu Zhang, Weijie Shi, Chengzhong LIU, Sirui Han, Yike Guo, "Towards Advanced Mathematical Reasoning for LLMs via First-Order Logic Theorem Proving", 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP), 2025 (main conference, CCF-B) [Paper]

[5] Zitao Zhang, Yuhong Huang, **Zijian Zhao**, Zhenshan Bing, Chenglin Cai, Alois Knoll and Kai Huang*, "Autonomous Locomotion of a Rat Robot Based on Model-free Reinforcement Learning", 2024 IEEE International Conference on Advanced Robotics and Mechatronics (ICARM), 2024 [Paper]

[6] Xiao Liang (supervisor), **Zijian Zhao**, Weichao Zeng, Yutong He, Fupeng He, Yiyi Wang, Chengying Gao*, "PianoBART: Symbolic Piano Music Understanding and Generating with Large-Scale Pre-Training", 2024 IEEE Conference on Multimedia Expo (ICME), 2024 (oral, CCF-B) [Paper] [Code] [Hugging Face]

[7] **Zijian Zhao**, Tingwei Chen, Fanyi Meng, Hang Li, Xiaoyang Li, Guangxu Zhu*, "Finding the Missing Data: A BERT-inspired Approach Against Package Loss in Wireless Sensing", 2024 IEEE International Conference on Computer Communications (INFOCOM) DeepWireless Workshop, 2024 (CCF-A) [Paper] [Code] [Dataset] [Hugging Face]

[8] Zitao Zhang, Yuhong Huang, **Zijian Zhao**, Zhenshan Bing, Alois Knoll and Kai Huang*, "A Hierarchical Reinforcement Learning Approach for Adaptive Quadruped Locomotion of a Rat Robot", 2023 IEEE International Conference on Robotics and Biomimetics (ROBIO), 2023 (**Best Paper Finalist**) [Paper]

[9] Zitao Zhang*, Yuhong Huang, **Zijian Zhao**, Zhenshan Bing, Kai Huang, "Autonomous Locomotion of a Rat Robot Based on Reinforcement Learning", 2023 China Intelligent Robotics Annual Conference (CCF CIRAC), 2023 [Paper]

### C. Technical Reports:

[1] **Zijian Zhao**, Xuming Zhang, Jiayu Wen, Mingwen Liu, Xiaoteng Ma, "Label Unbalance in High-frequency Trading", 2025 (reported by QuantML) [ArXiv] [Code]

[2] **Zijian Zhao**, "A Short Overview of Multi-Modal Wi-Fi Sensing", 2025 [ArXiv] [Code]

[3] **Zijian Zhao**, Zitao Zhang, Kai Huang, "A Trajectory-based Reinforcement Learning Approach for Autonomous Locomotion of a Rat Robot", 2024 [Report] [Code]

### D. Working Journal Papers:

[1] **Zijian Zhao**, Sen Li*, "The Impacts of Data Privacy Regulations on Food-Delivery Platforms" (under review, Transportation Research Part C: Emerging Technologies (TR_C))

[2] **Zijian Zhao**, Sen Li*, "Discriminatory Order Assignment and Payment-Setting of On-Demand Food-Delivery Platforms: A Multi-Action and Multi-Agent Reinforcement Learning Framework" (under review, Transportation Research Part E: Logistics and Transportation Review (TR_E))

[3] **Zijian Zhao**, Zhijie Cai, Tingwei Chen, Xiaoyang Li, Hang Li, Qimei Chen, Guangxu Zhu*, "KNN-MMD: Cross Domain Wireless Sensing via Local Distribution Alignment" (under review, IEEE Transactions on Mobile Computing (TMC)) [ArXiv] [Code] [Dataset]

[4] **Zijian Zhao**, Fanyi Meng, Zhonghao Lyu, Hang Li, Xiaoyang Li, Guangxu Zhu*, "CSI-BERT2: A BERT-Inspired Framework for Efficient CSI Prediction and Recognition in Wireless Communication and Sensing" (under review, IEEE Transactions on Mobile Computing (TMC)) [ArXiv] [Code] [Dataset] [Hugging Face]

[5] Shiting Chen*, **Zijian Zhao**, Jinsong Chen*, "Each to Their Own: Exploring the Optimal Embedding in RAG" (under review, Transactions of the Association for Computational Linguistics (TACL)) [ArXiv] [Code]

[6] **Zijian Zhao**, Sen Li*, "A Centralized Reinforcement Learning Framework for Large-Scale Dynamic Trip-Vehicle Assignment" (under way, to be submitted to Proceedings of the National Academy of Sciences (PNAS))

[7] **Zijian Zhao**, Sen Li*, "Scale-OSPO: Efficient Order Dispatch on Ride-Sharing Platform via One-Step Policy Optimization and Single Parameter Tuning" (under way, to be submitted to Transportation Research Part C: Emerging Technologies (TR_C))

### E. Working Conference Papers:

[1] **Zijian Zhao**, Sen Li*, "Triple-BERT: Do We Really Need MARL for Ride-Sharing Order Dispatch?" (under review, 2025 Annual Conference on Neural Information Processing Systems (NeurIPS))

[2] **Zijian Zhao**, Sen Li*, "One Step is Enough: Multi-Agent Reinforcement Learning based on One-Step Policy Optimization for Order Dispatch on Ride-Sharing Platforms" (under review, 2026 Annual AAAI Conference on Artificial Intelligence (AAAI)) [ArXiv] [Code]

[3] **Zijian Zhao**, Tingwei Chen, Fanyi Meng, Zhijie Cai, Hang Li, Xiaoyang Li, Guangxu Zhu*, "LoFi: Vision-Aided Label Generator for Wi-Fi Localization and Tracking Sensing" (under review, 2025 IEEE Global Communications Conference (Globecom) Mutual Facilitation of Generative Artificial Intelligence and Mobile Communications Workshop) [ArXiv] [Code] [Dataset]

[4] Tingwei Chen, Yantao Wang, Hanzhi Chen, **Zijian Zhao**, Xinhao Li, Nicola Piovesan, Guangxu Zhu*, Qingjiang Shi, "Modelling the 5G Energy Consumption using Real-world Data: Energy Fingerprint is All You Need" (under review, 2025 IEEE Global Communications Conference (Globecom) Mutual Facilitation of Generative Artificial Intelligence and Mobile Communications Workshop) [ArXiv] [Code]

[5] **Zijian Zhao**, Dian Jin, Zijing Zhou, Xiaoyu Zhang*, "Automatic Stage Lighting Control: Is it a Rule-Driven Process or a Generative Task?" (to be submitted to 2026 International Conference on Learning Representations (ICLR)) [ArXiv] [Code] [Dataset] [Hugging Face]

[6] Tingwei Chen, Jiayi Chen, **Zijian Zhao**, Haolong Chen, Liang Zhang*, Guangxu Zhu*, "First Token Probability Guided RAG for Telecom Question Answering" (under revise) [ArXiv]

[7] **Zijian Zhao***, Dian Jin, Zijing Zhou, "Zero-Effort Image-to-Music Generation: A RAG-based VLM Approach" (under way, to be submitted to 2026 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP))

## Patents

[1] **Zijian Zhao**, Guangxu Zhu, Qimei Chen, Kaifeng Han, "Method for Object Recognition Using Model Based on Few-Shot Learning and Related Equipment", Patent Number: ZL202411074110, 2024 [PDF]

[2] **Zijian Zhao**, Kaifeng Han, Qimei Chen, Guangxu Zhu, Xiaoyang Li, Hang Li, "Channel State Information Recovery Method and Apparatus, Equipment, Storage Medium", Patent Number: ZL2024102321250, 2024 [PDF]

[3] **Zijian Zhao**, Guangxu Zhu, Kaifeng Han, Xiaoyang Li, Hang Li, "Method for Classifying Data Using Model Based on Few-Shot Learning and Related Equipment", Application Number: 2024108392137, 2024 [PDF]

[4] **Zijian Zhao**, Guangxu Zhu, Shen Chao, Shi Qingjiang, Han Kaifeng, "Personnel Detection Method, Device, Electronic Equipment, and Storage Medium", Application Number: 2024105419689, 2024 [PDF]

[5] Kai Huang, Zitao Zhang, **Zijian Zhao**, Ruoyi Tao, "A Motion Control Method for Small Bionic Rat Based on Reinforcement Learning" , Application Number: 2023116499786, 2023 [PDF]

## Talks

[1] "Discriminatory Order Assignment and Payment-Setting of On-Demand Food-Delivery Platforms: The Impacts of Data Privacy Regulations", Bridging Transportation Researchers Conference, 2025, Online

[2] "A Lost Packet Recovery Technique for Robust Wireless Sensing", IMT-2030 (6G) Plenary Meeting of Wireless Technology Group, 2024, Shanghai

## Professional Activities

**1. Society Membership:** IEEE Student Membership, ACM Student Membership, CCF Student Membership
**2. TPC Membership:** IEEE WCNC Workshop 2024-2025, IEEE PIMRC Workshop 2024-2025, IEEE Globecom Workshop 2025, IEEE/CIC ICCC Workshop 2025
**3. Technical Reviewer:** AAAI 2026, ICLR 2025, ACL ARR 2025, IEEE ICME 2024-2025, IEEE ICASSP 2024-2025, IEEE IJCNN 2025, IEEE Globecom 2025, IEEE WCNC 2024-2025, IEEE/CIC ICCC 2025, IEEE AVSS 2025, IEEE MLSP 2025, IET IRC 2025, BTR 2025, IEEE PIMRC 2024, IEEE SMC 2023, IEEE TMC, IEEE WCL, MTAP, Bentham Science Book

## Teaching Activities

**1. Interview:** HKUST JUPAS 2025

## Skills and Interests

**1. Programming Skills:**
- Proficient in: Python, PyTorch, C/C++ (CCF-CSP:320, Top 0.8%)
- Familiar with: Matlab, MySQL, Git, Linux, ESP32
- Knowledgeable in: TensorFlow, Java, Web Scraping, QT

**2. Language:**
- English (IELTS:6.5, CET-4:605, CET-6: 561)
- Chinese (mother tongue)

**3. Interests:**
- Proficient in: Electric Guitar, Acoustic Guitar, Keyboard (Grade 10)
- Familiar with: Songwriting, Extreme Vocals, Electric Bass, Piano, Hulusi, Ukulele, Music Theory (Grade C)
- Knowledgeable in: Drums, Harmonica

## Main Honors And Awards

[1] Best Paper Award Finalist of Biomimetics in IEEE International Conference on Robotics and Biomimetics (ROBIO) 2023

[2] The Hong Kong University of Science and Technology RedBird PhD Award

[3] First-class Scholarship for Outstanding Student of Sun Yat-sen University

[4] Meritorious Winner in the Mathematical Contest in Modeling

[5] Runner Up Prize (No.2 out of 776 teams from 83 countries) in AI/ML for 5G-Energy Consumption Modeling by ITU AI/ML in 5G Challenge

[6] Third Prize (No.6 out of 287 teams) in The First Wi-Fi Sensing Contest by Huawei

[7] Provincial First Prize in the Chinese Mathematics Competitions

[8] Second Prize & Provincial First Prize in the National High School Mathematics League