

# 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: Deep Learning, Reinforcement Learning, Algorithm Discrimination, 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 Control

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**, Sen Li\*, "The Impacts of Data Privacy Regulations on Food-Delivery Platforms", Transportation Research Part C: Emerging Technologies (TR\_C), 2025 (JCR-Q1) [[Paper](#)] [[Code](#)]
- [2] **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) [[Paper](#)] [[Code](#)]
- [3] 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) [[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 [[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 [[Paper](#)] [[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", 2025 IEEE Global Communications Conference (Globecom) GenAI NGN Workshop, 2025 [[Paper](#)] [[Code](#)] [[Dataset](#)]
- [4] **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 & Modeling (ISTDM), 2025 (also presented at BTR 2025) [[Paper](#)]
- [5] Tingwei Chen, Yantao Wang, Hanzhi Chen, **Zijian Zhao**, Xinhao Li, Nicola Piovesan, Guangxu Zhu\*, Qingjiang Shi, "Modeling the 5G Energy Consumption using Real-World Data: Energy Fingerprint is All You Need", 2025 IEEE Global Communications Conference (Globecom) Mutual Facilitation of GenAI NGN Workshop, 2025 [[ArXiv](#)] [[Code](#)]
- [6] 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 [[Paper](#)]
- [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 [[Paper](#)] [[Code](#)] [[Dataset](#)] [[Hugging Face](#)]

- [8] 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 [[Paper](#)] [[Code](#)] [[Hugging Face](#)]
- [9] 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](#)]
- [10] 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](#)]
- [11] 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\*, "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))
- [2] **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](#)]
- [3] **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](#)]
- [4] **Zijian Zhao\***, Dian Jin, Zijing Zhou, "Zero-Effort Image-to-Music Generation: An Interpretable RAG-Based VLM Approach" (under review, IEEE Signal Processing Letters (SPL)) [[ArXiv](#)] [[Code](#)]
- [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" (to be submitted to Proceedings of the National Academy of Sciences (PNAS))
- [7] **Zijian Zhao**, Sen Li\*, "Efficient Order Dispatch on Ride-Sharing Platform via One-Step Policy Optimization and Single Parameter Tuning" (to be submitted to Transportation Research Part C: Emerging Technologies (TR\_C))
- [8] **Zijian Zhao**, Sen Li\*, "The Impact of Automatic Vehicle on Food Delivery Platform: A Multi-Stage Hybrid-Action MARL Framework" (under way)

### E. Working Conference Papers:

- [1] **Zijian Zhao**, Sen Li\*, "One Step is Enough: Multi-Agent Reinforcement Learning bBased on One-Step Policy Optimization for Order Dispatch on Ride-Sharing Platforms" (under review, 2026 Annual AAAI Conference on Artificial Intelligence (AAAI)) [[ArXiv](#)] [[Code](#)]
- [2] **Zijian Zhao**, Sen Li\*, "Triple-BERT: Do We Really Need MARL for Ride-Sharing Order Dispatch?" (under review, 2026 International Conference on Learning Representations (ICLR)) [[ArXiv](#)] [[Code](#)]
- [3] **Zijian Zhao**, Dian Jin, Zijing Zhou, Xiaoyu Zhang\*, "Automatic Stage Lighting Control: Is it a Rule-Driven Process or a Generative Task?" (under review, 2026 International Conference on Learning Representations (ICLR)) [[ArXiv](#)] [[Code](#)] [[Dataset](#)] [[Hugging Face](#)]
- [4] **Zijian Zhao**, "Towards Fairness in Transportation Gig Markets: Identifying, Imitating, and Mitigating Algorithm Discrimination via Deep Reinforcement Learning" (under review, 2026 Annual AAAI Conference on Artificial Intelligence (AAAI) / Special Interest Group on Artificial Intelligence (SIGAI) Doctoral Consortium)
- [5] **Zijian Zhao**, Jing Gao\*, Sen Li, "Ride-Hailing Vehicle Dispatch with a Mixture of On-Demand and Pre-Booked Requests: A Multi-Agent Reinforcement Learning Approach" (under review, 2026 COTA International Conference of Transportation Professionals (CICTP))
- [6] Dian Jin\*, **Zijian Zhao**, Zijing Zhou, "IfWorld: A Multi-Agent Framework for Cross-Disciplinary Counterfactual Scenario Reasoning" (under review, 2025 Open Conference of AI Agents for Science (Agents4Science))
- [7] Chuxue Cao, Jinluan Yang, **Zijian Zhao**, Haoran Li, Yuchen Tian, Kunhao Pan, Sirui Han, Yike Guo, "Enhancing Reasoning Reliability through Formal Logic Verification in Reinforcement Learning" (under review, 2026 Annual Meeting of the Association for Computational Linguistics (ACL))
- [8] Tingwei Chen, Jiayi Chen, **Zijian Zhao**, Haolong Chen, Liang Zhang\*, Guangxu Zhu\*, "First Token Probability Guided RAG for Telecom Question Answering" (under revise) [[ArXiv](#)]

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## Patents

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### A. Chinese 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 [\[PDF\]](#)

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## Talks

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- [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

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## Main Honors And Awards

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- [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

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## Professional Activities

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### 1. Society Membership:

- Computer: IEEE Student Membership, ACM Student Membership, CCF Student Membership

### 2. TPC Membership:

- Communication & Network Conferences: IEEE WCNC Workshop 2024-2025, IEEE PIMRC Workshop 2024-2025, IEEE Globecom Workshop 2025, IEEE/CIC ICCN Workshop 2025

### 3. Technical Reviewer:

- Computer & AI Conferences: IEEE ICASSP 2024-2026, AAAI 2026, IEEE ICME 2024-2025, ICLR 2025, ACL ARR 2025, IEEE IJCNN 2025, IEEE AVSS 2025, IEEE SMC 2023
- Communication & Network Conferences: IEEE WCNC 2024-2025, IEEE PIMRC 2024-2025, IEEE Globecom 2025, IEEE/CIC ICCN 2025, IEEE MLSP 2025, IET IRC 2025
- Transportation Conferences: HKSTS 2024-2025, BTR 2025
- Journals & Books: IEEE TMC, IEEE WCL, MTAP, Bentham Science Book

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## Teaching Activities

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### 1. Interview:

- HKUST: JUPAS 2025

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## Skills and Interests

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### 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