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: 3.9/4.2*
Main Research Direction: *Multi-agent & Multi-action Reinforcement Learning, Deep Learning, Smart Transportation*

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%*
Change major from Electronic Information (Shenzhen Campus) to Computer Science (Guangzhou Campus) in 2021.
Main Research Direction: *Wi-Fi 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*
Course Projects : *https://gitee.com/zzj_rs/undergraduate-programs*

Experience

Industry-University-Research Student Feb. 2024 – Aug. 2024
Likelihood Lab *Part-time, Online*
Visiting Student Aug. 2023 – Aug. 2024
Shenzhen Research Institute of Big Data *Associated with Chinese University of Hong Kong (Shenzhen)*

Publications

[1] 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

[2] 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**)

[3] **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

[4] 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**)

[5] 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

[6] **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 C: Emerging Technologies (TR_C))

[7] **Zijian Zhao**, Sen Li*, "Multi-Action and Multi-Agent Reinforcement Learning for Discriminatory Order Assignment and Payment Setting on Food-Delivery Platform" (under review, Symposium of the European Association for Research in Transportation (hEART), 2025)

[8] **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" (under review, IEEE Internet of Things Journal (IOT))

[9] **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 Cognitive Communications and Networking (TCCN))

[10] **Zijian Zhao***, "Let Network Decide What to Learn: Symbolic Music Understanding Model Based on Large-scale Adversarial Pre-training", (under review, ACM International Conference on Multimedia Retrieval (ICMR), 2025)

[11] 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" (under review, Science China Information Sciences (SCIS))

[12] 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 revise, available in ArXiv)

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

[14] **Zijian Zhao**, Fanyi Meng, Hang Li, Xiaoyang Li, Guangxu Zhu*, "Mining Limited Data Sufficiently: A BERT-inspired Approach for CSI Time Series Application in Wireless Communication and Sensing" (to be submitted, available in ArXiv)

[15] **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" (to be submitted, available in ArXiv)

Patents

[1] **Zijian Zhao**, Kaifeng Han, Qimei Chen, Guangxu Zhu, Xiaoyang Li, Hang Li, "Channel State Information Recovery Method and Apparatus, Equipment, Storage Medium" (Shenzhen Big Data Research Institute, Patent Number: ZL2024102321250, 2024)

[2] **Zijian Zhao**, Guangxu Zhu, Qimei Chen, Kaifeng Han, "Method for Object Recognition Using Model Based on Few-Shot Learning and Related Equipment" (Shenzhen Big Data Research Institute, Patent Number: ZL202411074110, 2024)

[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" (Shenzhen Big Data Research Institute, Application number: 2024108392137, 2024)

[4] **Zijian Zhao**, Guangxu Zhu, Shen Chao, Shi Qingjiang, Han Kaifeng, "Personnel Detection Method, Device, Electronic Equipment, and Storage Medium" (Shenzhen Big Data Research Institute, Application number: 2024105419689, 2024)

[5] Kai Huang (supervisor), Zitao Zhang (supervisor), **Zijian Zhao**, Ruoyi Tao, "A Motion Control Method for Small Bionic Rat Based on Reinforcement Learning" (Artificial Intelligence and Digital Economy Guangdong Provincial Laboratory (Guangzhou) & Sun Yat-sen University, Application number: 2023116499786, 2023)

Professional Activities

1. Society Membership: CCF Student Membership (granted for free)
2. TPC Membership: IEEE PIMRC 2024, IEEE WCNC 2024-2025
3. Technical Reviewer: IEEE PIMRC, IEEE WCNC, IEEE ICASSP, IEEE ICME, IEEE IJCNN, IEEE SMC, IEEE MTAP

Skills and Interests

1. Programming Skills:
- Proficient in: C/C++ (CCF-CSP:320, Top 0.8%), Python, Matlab, Pytorch
- Familiar with: MySQL, Git, Linux, ESP32

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, Hulusi, Ukulele, Music Theory (Grade C)
- Knowledgeable in: Electric Bass, Piano, Drums, Harmonica

Research Experience

1. HKUST - Department of Civil and Environmental Engineering – Smart City Lab (Supervisor: Prof. Sen Li, 2024.09 - Present):
Topic I: Smart Transportation: Multi-action & Multi-agent Deep Reinforcement Learning in Food Delivery & Ride-hailing Platforms

2. SRIBD - Data-driven Intelligent Information System Laboratory - AI-RAN Lab (Supervisor: Prof. Guangxu Zhu (Deputy Director), 2023.08-2024.08):
Topic I: Integrated Sensing and Communication: Wireless Sensing, Cross Domain Task, Signal Processing By Deep Learning, Real-time System, Dataset Collection
Topic II: Network Optimization: Energy Consumption Modeling, Spectral Effect Prediction, Radiomap Construction, Large Foundation Model, LLM & RAG

3. SYSU - Intelligent and Multimedia Science Laboratory (Supervisor: Prof. Chengying Gao & Prof. Ning Liu (Director of Cybersecurity Department), 2021.12-2023.12):
Topic I: Music Generation: Symbolic Music Generation, LLM for Music
Topic II: Music Understanding: Symbolic & Audio Music Understanding, Bias & Information Leakage Problem in Symbolic Music

4. SYSU - Robotic and Intelligence Computing Lab (Supervisor: Prof. Kai Huang (Director of Artificial Intelligence and Unmanned Systems Research Institute), 2022.09-2024.08):
Topic I: Robot Reinforcement Learning (based on robot rat NeRmo): Trajectory-based RL Framework, Lightwise RL Control Method

5. Others: :
Project I: Deep Learning Algorithms for Long-tail Problem in High-Frequency Trading (Likelihood Lab, 2024.02-2024.08)
Project II: FinanceGPT: Inance Intelligent Robo-Advisor (2023.05-2023.09)
Project III: Implementation of a Compressed Sensing Algorithm Based on DSP (Supervisor: Prof. Xizhang Wei, 2021.01-2021.12)

Main Honors And Awards

A. Graduate Studies:

a. School Award:

1. The Hong Kong University of Science and Technology RedBird PhD Award (received a bonus of 40,000 HKD)

B. Undergraduate Studies:

a. International Award:

1. Meritorious Winner in the Mathematical Contest in Modeling (served as team leader and supervisor)
2. Second Prize in Asia and Pacific Mathematical Contest in Modeling (served as team leader)
3. Runner Up Prize (No.2 out of 776 teams from 83 countries) in AI/ML for 5G-Energy Consumption Modelling by ITU AI/ML in 5G Challenge (reached the final, received a bonus of 3,000 CHF, Supervisor: Dr. Guangxu Zhu)
4. Best Paper Award in Biomimetics Finalist in IEEE International Conference on Robotics and Biomimetics (ROBIO) 2023

b. National Award:

1. Third Prize (No.6 out of 287 teams) in The First Wi-Fi Sensing Contest by Huawei (reached the final, received a bonus of 20,000 CNY, Supervisor: Dr. Guangxu Zhu, Dr. Xiaoyang Li, Dr. Hang Li)
2. Bronze Award in China College Algorithm Design & Program Challenge Contest
3. Third Prize in the National College Students' IT Skills Competition of Chuanzhi Cup

c. Provincial Award:

1. Provincial First Prize in the Chinese Mathematics Competitions
2. Provincial Second Prize in SPSS University Contest in Modeling (supervisor: Prof. Qi Liang, Prof. Ruyu Wang)
3. Provincial Third Prize in the Chinese Mathematics Competitions (served as team leader)
4. Provincial Third Prize in the National College Students' Mathematics Competition of Huaqiao Cup

d. School Award:

1. First-class Scholarship for Outstanding student of Sun Yat-sen University (received a bonus of 4,000 CNY)
2. First Prize in Sun Yat-sen University Novice Programming Competition (served as team leader)
3. Wining Prize in Sun Yat-sen University Electronic Design Creative Competition (served as team leader)
4. Third Prize and Outstanding Resume Award in Sun Yat-sen University Future Job Hunting Competition (received a bonus of 300 CNY)

References

Prof. Sen Li: Assistant Professor, Department of Civil and Environmental Engineering, The Hong Kong University of Science and Technology, E-mail: cesli@ust.hk

Prof. Guangxu Zhu: Deputy Director & Senior Research Scientist & Adjunct Associate Professor, Shenzhen Research Institute of Big Data, The Chinese University of Hong Kong (Shenzhen), E-mail: gxzhu@sribd.cn

Prof. Xiaoyang Li: Research Scientist & Adjunct Assistant Professor, Shenzhen Research Institute of Big Data, The Chinese University of Hong Kong (Shenzhen), E-mail: lixiaoyang@sribd.cn

Dr. Hang Li: Research Scientist, Shenzhen Research Institute of Big Data, The Chinese University of Hong Kong (Shenzhen), E-mail: hangdavidli@sribd.cn