

Jiayi Zhang

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Education

University of Nottingham Ningbo China (UNNC)

BSc (HONS) MATHEMATICS WITH APPLIED MATHEMATICS

• GPA - 3.83/4.00

Ningbo China

Sep 2024 - Jun 2028 (Expected)

Research Interests

My research focuses on aligning **learning** and **control** to build intelligent systems that **perceive**, **reason**, and **interact** with the physical world. Grounded in **mathematics**, **AI**, and **control theory**, I study how large-scale **multimodal models** integrate with **decision-making frameworks** to go beyond passive perception, toward **embodied intelligence** operating in complex environments. I support **SLOW SCIENCE**.

Experience

Shanghai Jiao Tong University (SJTU)

RESEARCH ASSIST AT **IWIN-FINS LAB**, ADVISED BY **PROF. JIANPING HE**

• **Research Topics:** generative model, manipulation, equivariant and invariant

The University of Hong Kong (HKU)

RESEARCH INTERN AT **IoT LAB**, ADVISED BY **PROF. EDITH C.H. NGAI**

• **Research Topics:** federated learning, fairness, spatio-temporal graphs.

Shanghai, China

June 2025 - Present

Hong Kong SAR, China

March 2025 - August 2025

Publications

PREPRINTS

[P2] F²STNet: Fair and Federated Spectral-Temporal Modeling for Graph Forecasting

Jiayi Zhang*, Jinfeng Xu*, Hewei Wang*, Siyuan Cen, Haidong Huang, Yiyao Zhan, Zheyu Chen, Jinjiang You, Ai Jian, Edith C. H. Ngai
Under review, 2025

[P1] Multi-modal Dynamic Proxy Learning for Personalized Multiple Clustering

Jinfeng Xu, Zheyu Chen, Shuo Yang, Jinze Li, Ziyue Peng, Zewei Liu, Hewei Wang, Jiayi Zhang, Edith C. H. Ngai
Under review, 2025

CONFERENCE PROCEEDINGS

[C3] Multi-Cali Anything: Dense Feature Multi-Frame Structure-from-Motion for Large-Scale Camera Array Calibration

Jinjiang You*, Hewei Wang*, Yijie Li, Mingxiao Huo, Long Van Tran Ha, Mingyuan Ma, Jinfeng Xu, Jiayi Zhang, Puzhen Wu, Shubham Garg, Wei Pu
IROS, 2025 (Oral) [Paper]

[C2] Spec-LLAVA: Accelerating Vision-Language Models with Dynamic Tree-Based Speculative Decoding

Mingxiao Huo*, Jiayi Zhang*, Hewei Wang*, Jinfeng Xu, Zheyu Chen, Huilin Tai, Ian Yijun Chen
ICML Workshop, 2025 [Paper]

[C1] Segregation and Context Aggregation Network for Real-Time Cloud Segmentation

Yijie Li*, Hewei Wang*, Jiayi Zhang, Jinjiang You, Jinfeng Xu, Puzhen Wu, Yunzhong Xiao, Soumyabrata Dev
ICLR Workshop, 2025 [Paper]

JOURNAL ARTICLES

[J3] FGSCare: A Feature-driven Grid Search-based Machine Learning Framework for Coronary Heart Disease Prediction

Zhenqi Li*, Jiayi Zhang*, Yuchen Wang*, Jinjiang You, Junhao Zhong, Soumyabrata Dev
Qeios preprint, 2025 [Paper]

[J2] TrafficKAN-GCN: Graph Convolutional-based Kolmogorov-Arnold Network for Traffic Flow Optimization

Jiayi Zhang*, Yiming Zhang*, Yuan Zheng, Yuchen Wang, Jinjiang You, Yuchen Xu, Wenxing Jiang, Soumyabrata Dev
arXiv preprint, 2025 [Paper]

[J1] RAINER: A Robust Ensemble Learning Grid Search-Tuned Framework for Rainfall Patterns Prediction

Zhenqi Li*, Junhao Zhong*, Hewei Wang, Jinfeng Xu, Yijie Li, Jinjiang You, Jiayi Zhang, Runzhi Wu, Soumyabrata Dev
arXiv preprint, 2025 [Paper]

Honors & Awards

2022 **Silver Medal**, Chinese Mathematical Olympiad (CMO), 2022

Shenzhen, China

Leadership/Mentorship/Social

Co-Principal Investigator

UNIVERSITY OF NOTTINGHAM NINGBO CHINA (UNNC)

Ningbo China

Summer 2025-Fall 2027

- Developed a 30B multimodal model for academic manuscript review and feedback support in university settings.
- In-progress internal project for student-faculty support.

Skills

Programming Languages Python, C/C++, \LaTeX , Java, MATLAB, HTML, CSS, JavaScript, Kotlin

Frameworks PyTorch, Tensorflow, NumPy, Flask, MySQL, Git, Anaconda, OpenCV, ROS

Machine Learning Models CNN, ResNet, Faster R-CNN, YOLO, LSTM, Transformer, BERT, ViT, GANs, VAE, Stable Diffusion

Platforms Unitree Z1 Pro, Franka Research 3