

HUANYU ZHANG

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EDUCATION

Chinese Academy of Science, Institute of automation, Beijing, China 2022 – 2027 (expected)

Ph.D student in Pattern Recognition and Intelligent System

Advisors: Zhang Zhang, Liang Wang (FIEEE) and Tieniu Tan (FCAS, FIEEE)

Xi'an Jiaotong University, Shaanxi, China

2018 – 2022

B.S. in Automation

RESEARCH EXPERIENCE

Research Intern | General AI Group, Microsoft Research Asia Nov. 2024 – now

- Designed a plug-and-play module that unlocks advanced multimodal reasoning in MLLMs, enabling them to “think visually” by autoregressively generating visual latents alongside text.
- Conducted in-depth analysis of challenges in spatial reasoning for MLLMs, identifying limitations and proposing potential enhancement strategies.
- Explored multimodal reasoning methods within the current large model architecture, aiming to improve performance and interpretability on multimodal tasks.

Research Intern | Machine Learning Group, Microsoft Research Asia Jul. 2024 – Oct. 2024

- Developed a retrieval-augmented forecasting framework to enhance the generalization capabilities of Time Series Foundation Models by integrating external knowledge.
- Proposed an effective knowledge integration method and an learnable retriever to obtain valuable information from knowledge base.

PUBLICATION & PREPRINTS

Google Scholar citations: 200+

- **Latent Sketchpad : Sketching Visual Thoughts to Elicit Multimodal Reasoning in MLLMs**
Huanyu Zhang*, Wenshan Wu*, Chengzu Li, Ning Shang, Yan Xia, Yangyu Huang, Yifan Zhang Li Dong, Zhang Zhang, Liang Wang, Tieniu Tan and Furu Wei
arXiv preprint arXiv:2510.24514
- **LogoRA: Local-Global Representation Alignment for Robust Time Series Classification**
Huanyu Zhang, Yi-Fan Zhang, Zhang Zhang, Qingsong Wen and Liang Wang
IEEE Transactions on Knowledge and Data Engineering 2024 (CCF-A)
- **TimeRAF: Retrieval-Augmented Foundation model for Zero-shot Time Series Forecasting**
Huanyu Zhang, Chang Xu, YiFan Zhang, Zhang Zhang, Liang Wang, Tieniu Tan and Jiang Bian
IEEE Transactions on Knowledge and Data Engineering 2025 (CCF-A)
- **Spectral Decomposition and Adaptation for Non-stationary Time Series Anomaly Detection**
Huanyu Zhang, YiFan Zhang, Jian Liang, Zhang Zhang, Liang Wang and Tieniu Tan
Neurocomputing 2025 (JCR: Q1)
- **Scaling and Beyond: Advancing Spatial Reasoning in MLLMs Requires New Recipes**
Huanyu Zhang*, Chengzu Li*, Wenshan Wu, Shaoguang Mao, Ivan Zhang YiFan, Tian Haochen, Vulić, Zhang Zhang, Liang Wang, Tieniu Tan and Furu Wei
arXiv preprint arXiv:2504.15037
- **Imagine while Reasoning in Space: Multimodal Visualization-of-Thought**
Chengzu Li, Wenshan Wu, Huanyu Zhang, Yan Xia, Shaoguang Mao, Li Dong, Ivan Vulić and Furu Wei
ICML 2025
- **MME-RealWorld: Could Your Multimodal LLM Challenge High-Resolution Real-World Scenarios that are Difficult for Humans?**

Yi-Fan Zhang, Huanyu Zhang, Haochen Tian, Chaoyou Fu, Shuangqing Zhang, Junfei Wu, Feng Li, Kun Wang, Qingsong Wen, Zhang Zhang, Liang Wang, Rong Jin and Tieniu Tan
ICLR 2025

SKILLS

- Programming Languages: Python > C++ == C > Java
- Platform: Linux
- Others: Pytorch

HONORS AND AWARDS

Outstanding Student Award

2020