Zijian Zhang

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Research Interests

My research interests include AI Safety, Alignment for LLM (especially data-efficient alignment) & Vision-Language-Action models and Robot Learning.

Education

East China University of Science and Technology, Shanghai, China   2021.09 - present

Computer Science

GPA: 88/100 [transcript]

Main courses: Advanced mathematics (98), Linear algebra (100), Principles of computer composition(99), Object-oriented programming (99), Fundamentals of compiling (90), Operating system (96)

Publications

1. **GRAPE: Generalizing Robot Policy via Preference Alignment**

   <u>Zijian Zhang</u>, Kaiyuan Zheng, Zhaorun Chen, Joel Jang, Yi Li, Chaoqi Wang, Mingyu Ding, Dieter Fox, Huaxiu Yao

   (Under review) CVPR, 2025

2. **AnyPrefer: An Automatic Framework for Preference Data Synthesis**

   Yiyang Zhou, ..., <u>Zijian Zhang</u>, ..., Huaxiu Yao

   (Under review) ICLR, 2025

Research Experience

Research Assistant, Huaxiu Yao's Lab @ University of North Carolina at Chapel Hill   2024.05 - present

- Introduced a new method to improve VLA model through DPO and iterative training framework, eventually the robots perform better in several tasks
- Introduced Trajectory-wise DPO for VLA model posttraining, which enhances the safety, efficiency, and success rate of the VLA model.
- Authored 1*ICLR'25, 1*CVPR'25.

Advisor: Prof. Huaxiu Yao

Research Assistant, Machine Learning Group @ Microsoft Research Asia   2024.10 - present

- Worked on efficiently training LLM from mixing NLP datasets by dynamic sampling.
- Worked on modeling the distribution of the dataset based on statistical parameters to enhance the explainability of data-efficient training
- Worked on analyzing dynamic parameters (such as loss) during model training to better control the training process.

Advisor: Prof. Zhong Li

Research Assistant, AIR-DREAM Lab @ Tsinghua University   2024.6 - 2024.9

- Worked on leveraging the self-critic ability of LLMs to enhance the mathematical reasoning capabilities of the model.
- Worked on enable the LLMs to have intelligent decision-making capabilities by reinforcement learning.

Advisor: Prof. Xianyuan Zhan

Research Assistant, InternLM2 Team @ Shanghai AI Lab (Top-tier national AI lab in China) 2023.11 - 2024.5

- Proposed an efficient data selection method to extract high-quality samples from the original SFT dataset of InternLM2. By fine-tuning InternLM2 on the top 10% of the highest-scoring examples, the model achieved superior performance compared to using the entire instruction dataset.
- Solved the Identity Attack problem in InternLM. Constructed a special finetune dataset to enhance the cognitive ability of the model. Introduced a benchmark to Evaluate the model's ability to resist Identity Attacks.
- Participated in the research and development of InternLM/InternLM2, which are well-known open source LLMs.

Advisor: Prof. Yining Li

Services

- Reviewer for CVPR 2025   2024
- Reviewer for Neurips Workshop 2024   2024

Skills

- Programming Skills: C/C++, Python, PyTorch, LaTeX, Git
- Language Skills: Mandarin (native), English (TOFEL 100: R 27, L 24, S 22, W 27)

Awards

- Scholarship for Outstanding Students, First Prize   East China University of Science and Technology
- Outstanding student leaders   East China University of Science and Technology
- National Scholarship   Ministry of Education
- National Mathematics Competition for college students, First Prize   Chinese Mathematical Society
- Suzhou Industrial Park Scholarship   Suzhou government