Jiatong Zhao

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Education

Shanghai Jiao Tong University, Zhiyuan Honer College
Physics (Zhiyuan Honors Program) Sep 2023 – Jun 2027

- **GPA**: 3.9/4.3, **Average Core:** 90.5/100, Ranked 1st out of 30 in major **comprehensive evaluation**
- **Major Courses**: Linear Algebra (**Honor**), Mathematical Analysis (**Honor**), Probability and Mathematical Statistics (**Honor**), Machine Learning (**Honor**), Data Structure, Programming and Computational Physics Basics(**Honor**)
- **Prize**: 2025 MCM **Meritorious Winner**
- **Honors: Zhiyuan Honor Scholarship**, **Xiaomi Scholarship**, Class of 2009 School of Electronic Information Alumni Scholarship, Category A Undergraduate Scholarship

Research Experience

Moe Model Stability: router training dynamic and train-inference mismatch

Sep 2025-Now

- Advisor: Ning Ding, Tsinghua University
- Dive deep into the Moe model training stability, give insights about the mechanic of the Moe model training collapse, especially train-inference mismatch
- Propose a recipe for Moe model training

Reinforcement Learning Framework for diffusion model with generalized reasoning ability

July 2025 – Sep 2025

- Advisor: Jie Fu, Shanghai AILab
- Proposed a RL framework for block-diffusion architecture
- Try to achieve a Turing-complete AR-diffusion architecture's latent Chain-of-Thought (CoT) purely through RL

Formal Language-Enhanced Mathematical Reasoning in Large Language Models

Mar 2025 – May 2025

- Advisor: Junchi Yan, Shanghai Jiao Tong University, and Renqiu Xia, Shanghai Jiao Tong University
- Propose a **hierarchical benchmark** featuring four reasoning levels in **geometric problem-solving**: Visual Perception, Goal-Oriented Planning, Rigorous Theorem Application, and Self-Reflective Backtracking.
- The paper has been **accepted** by **ICLR 2026**

Academic papers

- Yuan Feng, Yue Yang, Xiaohan He, **Jiatong Zhao**, &, Renqiu Xia, Bo Zhang, Junchi Yan, "GeoBench: Rethinking Multimodal Geometric Problem-Solving via Hierarchical Evaluation", The Fourteenth International Conference on Learning Representations (**ICLR**) 2026
- **Jiatong Zhao,** Tengyue Zhang, Yuhan Wang, Fuyuan Wu, Junchi Yan, "Co4ICF: Co-evolving Physics-Informed Surrogate and RL-based Pulse Optimizer for Inertial Confinement Fusion"

Research Interests

I mainly focus on how to enable models to emergently develop **generalized reasoning abilities at a sustainale scale with RL**. My research interests are listed below, and you can see my homepage for a detailed version.

- **Emergent Reasoning Ability**: whether RL can maximize exploration and reasoning in models without relying on well-predefined structure or SFT. I also explore the potential for pure RL to drive the emergence of latent reasoning processes, particularly in context of CoT reasoning.
- **RL stability and robustness**: a critical issue of current RL framework is instability, particularly in phenomenon of train-inference mismatch. In case that the current AI Infra issue of mismatch cannot be addressed easily, I aim to uncover the underlying cause of such instability and develop reliable RL training recipe.
- **RL self-evolving:** develop scalable RL frameworks that enable models to autonomously improve their reasoning and performance without constant external reward, pushing towards more adaptable and self-sustaining systems.