

SHENAO ZHANG

shenao@u.northwestern.edu | shenao-zhang.github.io

EDUCATION

Northwestern University

Ph.D. student in IEMS (Industrial Engineering & Management Sciences)

Advisor: Prof. Zhaoran Wang

Sep. 2023 - Present

Evanston, IL

Georgia Institute of Technology

M.S. in ECE (Electrical and Computer Engineering), GPA: 3.81/4.00

Advisor: Prof. Tuo Zhao and Prof. Bo Dai

May 2020 - May. 2022

Atlanta, GA

South China University of Technology

B.Eng. in EE (Electronic and Information Engineering, Innovation Class)

Aug. 2016 - May 2020

Guangzhou, China

University of California, Berkeley

Visiting student at the Department of EECS, GPA: 3.90/4.00

Jan. 2019 - May 2019

Berkeley, CA

RESEARCH INTERESTS

My research centers around Large Language Models (LLMs) and Reinforcement Learning (RL). I'm currently interested in LLM/agent reasoning and alignment. The ultimate goal of my research is to build systems that actively explore and self-improve to achieve super-human intelligence. Previously, I developed data-efficient decision-making algorithms with applications to robotic and multi-agent systems.

PREPRINTS

[13] **Shenao Zhang**, Yaqing Wang, Yinxiao Liu, Tianqi Liu, Peter Grabowski, Eugene Ie, Zhaoran Wang[†], Yunxuan Li[†], “Beyond Markovian: Reflective Exploration via Bayes-Adaptive RL for LLM Reasoning”, *Preprint*. [PDF]

PROCEEDINGS

[12] Han Zhong*, Yutong Yin*, **Shenao Zhang**, Xiaojun Xu, Yuanxin Liu, Yifei Zuo, Zhihan Liu, Boyi Liu, Sirui Zheng, Hongyi Guo, Liwei Wang, Mingyi Hong, Zhaoran Wang, “BRiTE: Bootstrapping Reinforced Thinking Process to Enhance Language Model Reasoning”, *International Conference on Machine Learning (ICML)*, 2025. [PDF]

[11] Huaijie Wang*, Shibo Hao*, Hanze Dong, **Shenao Zhang**, Yilin Bao, Ziran Yang, Yi Wu, “Offline Reinforcement Learning for LLM Multi-Step Reasoning”, *Findings of the Association for Computational Linguistics (ACL), ICLR Workshop on Reasoning and Planning for LLMs (Oral)*, 2025. [PDF]

[10] **Shenao Zhang***, Zhihan Liu*, Boyi Liu, Yufeng Zhang, Yingxiang Yang, Liyu Chen, Tao Sun, Zhaoran Wang, “Reward-Augmented Data Enhances Direct Preference Alignment of LLMs”, *International Conference on Machine Learning (ICML)*, 2025. [PDF]

[9] **Shenao Zhang**, Donghan Yu, Hiteshi Sharma, Ziyi Yang, Shuohang Wang, Hany Hassan, Zhaoran Wang, “Self-Exploring Language Models: Active Preference Elicitation for Online Alignment”, *Transactions on Machine Learning Research (TMLR), ICML AutoRL Workshop (Best Paper Award)*, 2024. [PDF]

[8] Zhihan Liu*, Miao Lu*, **Shenao Zhang**, Boyi Liu, Hongyi Guo, Yingxiang Yang, Jose Blanchet, Zhaoran Wang, “Provably Mitigating Overoptimization in RLHF: Your SFT Loss is Implicitly an Adversarial Regularizer”, *Neural Information Processing Systems (NeurIPS)*, 2024. [PDF]

[7] Zhihan Liu*, Hao Hu*, **Shenao Zhang***, Hongyi Guo, Shuqi Ke, Boyi Liu, Zhaoran Wang, “Reason for Future, Act for Now: A Principled Framework for Autonomous LLM Agents with Provable Sample Efficiency”, *International Conference on Machine Learning (ICML)*, 2024. [PDF]

- [6] Feng Gao*, Liangzhi Shi*, **Shenao Zhang**, Zhaoran Wang, Yi Wu, “Adaptive-Gradient Policy Optimization: Enhancing Policy Learning in Non-Smooth Differentiable Simulations”, *International Conference on Machine Learning (ICML)*, 2024. [\[PDF\]](#)
- [5] **Shenao Zhang**, Boyi Liu, Zhaoran Wang[†], Tuo Zhao[†], “Model-Based Reparameterization Policy Gradient: Theory and Practical Algorithms”, *Neural Information Processing Systems (NeurIPS)*, 2023. [\[PDF\]](#).
- [4] Zhihan Liu*, Miao Lu*, Wei Xiong*, Han Zhong, Hao Hu, **Shenao Zhang**, Sirui Zheng, Zhuoran Yang, Zhaoran Wang, “Maximize to Explore: One Objective Function Fusing Estimation, Planning, and Exploration”, *Neural Information Processing Systems (NeurIPS)* ([Spotlight](#)), 2023. [\[PDF\]](#)
- [3] **Shenao Zhang**, Wanxin Jin, Zhaoran Wang, “Adaptive Barrier Smoothing for First-Order Policy Gradient with Contact Dynamics”, *International Conference on Machine Learning (ICML)*, 2023. [\[PDF\]](#)
- [2] **Shenao Zhang**, “Conservative Dual Policy Optimization for Efficient Model-Based Reinforcement Learning”, *Neural Information Processing Systems (NeurIPS)*, 2022. [\[PDF\]](#)
- [1] **Shenao Zhang**, Li Shen, Lei Han, Li Shen, “Learning Meta Representation for Agents in Multi-Agent Reinforcement Learning”, *Conference on Lifelong Learning Agents (CoLLAs)* ([Oral](#)), 2023. [\[PDF\]](#)

INTERNSHIP EXPERIENCE

Google	<i>Dec. 2024 - May 2025</i>
<i>Student Researcher</i>	Advisors: Eric Li, Yaqing Wang, Canoe Liu, and Tianqi Liu
• Worked on test-time exploration and Bayes-adaptive RL for reflective reasoning [13] .	
Microsoft GenAI	<i>Jan. 2024 - June 2024</i>
<i>Student Researcher</i>	Advisor: Donghan Yu
• Worked on active preference elicitation for online alignment [9] .	
ByteDance Seed	<i>June 2024 - Sep. 2024</i>
<i>Research Intern</i>	<i>June 2023 - Aug. 2023</i>
• Worked on RL with LLM policy prior [*] and reward-augmented alignment [10] .	
Microsoft Research (MSR), Asia	<i>Feb. 2023 - May 2023</i>
<i>Research Intern</i>	Advisor: Li Zhao
• Worked on autonomous LLM agents that actively gather information [*] .	
Tencent AI Lab	<i>Aug. 2019 - Sep. 2020</i>
<i>Research Intern</i>	Advisors: Li Shen, Lei Han and Li Shen
• Worked on visual attention representation [*] and multi-agent RL [1] .	

TEACHING EXPERIENCE

Head TA of the graduate course [CS 7648: Interactive Robot Learning](#) (Fall 2021) at Georgia Tech.

PROFESSIONAL SERVICE

Conference Review: NeurIPS 20-25, ICLR 22-25, ICML 22-25, AISTATS 22-25, COLM 24-25.
Journal Review: Neurocomputing, TPAMI, TMLR.

HONORS AND AWARDS

Meshy Fellowship Finalist	<i>2025</i>
NeurIPS Top Reviewer	<i>2024</i>
NeurIPS Scholar Award	<i>2022-2023</i>
ICML Travel Award	<i>2023</i>
Georgia Tech Level A Premier Merit-Based Scholarship	<i>2020-2021</i>
Outstanding Freshman Scholarship (Awarded to 30 among 6,500 students)	<i>2016</i>