Xiangyu Liu

CONTACT INFORMATION

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https://xiangyu-liu.github.io/

EDUCATION

University of Maryland, College Park, MD, USA
Ph.D. in Computer Sciences Aug. 2021 – present
- Advisor: Kaiqing Zhang

Shanghai Jiao Tong University (SJTU), Shanghai, CN
Bachelor in Computer Science Sep. 2017 —- Jun. 2021
- Zhiyuan Honors Program of Engineering (an elite program for top 5% talented students)

University of California, Berkeley, CA, USA
Exchange student Jan. 2020 – May 2020
- GPA: 4.0/4.0

RESEARCH INTERESTS

- Multi-agent reinforcement learning and game theory: paper [J1, C1, C2, C6, C8]
- Responsible AI and robustness: paper [C3, C4, C5, C7]
- LLM agents, alignment: paper [C7, C9]

JOURNAL PUBLICATIONS

[J1] **Xiangyu Liu**, Kaiqing Zhang
Partially Observable Multi-Agent Reinforcement Learning with Information Sharing
SIAM Journal on Control and Optimization **(SICON 2025)**
Shorter version appeared at ICML 2023

CONFERENCE PUBLICATIONS

[C9] (*denotes equal contribution) Chanwoo Park*, **Xiangyu Liu***, Asuman E. Ozdaglar, Kaiqing Zhang
Do LLM Agents Have Regret? A Case Study in Online Learning and Games
International Conference on Learning Representations **(ICLR 2025)**
Oral talk at ICLR 2024 workshop: How Far Are We From AGI?

[C8] (Alphabetical order) **Xiangyu Liu**†, Haoyi You†, Kaiqing Zhang†
Principled Learning-to-Communicate with Quasi-Classical Information Structures
IEEE Conference on Decision and Control **(CDC 2025)**

[C7] Pankayaraj Pathmanathan, Souradip Chakraborty, **Xiangyu Liu**, Yongyuan Liang, Furong Huang
Is Poisoning a Real Threat to LLM Alignment? Maybe More So Than You Think
AAAI Conference on Artificial Intelligence **(AAAI 2025)**

[C6] (Alphabetical order) Yang Cai†, **Xiangyu Liu**†, Argyris Oikonomou†, Kaiqing Zhang†
Provable Partially Observable Reinforcement Learning with Privileged Information
Conference on Neural Information Processing Systems **(NeurIPS 2024)**

[C5] Yongyuan Liang, Yanchao Sun, Ruijie Zheng, **Xiangyu Liu**, Tuomas Sandholm, Furong Huang, Stephen McAleer
Game-theoretic Robust Reinforcement Learning Handles Temporally-coupled Perturbations
International Conference on Learning Representations **(ICLR 2024)**

[C4] **Xiangyu Liu**, Chenghao Deng, Yanchao Sun, Yongyuan Liang, Furong Huang
Beyond Worst-case Attacks: Robust RL with Adaptive Defense via Non-dominated Policies
International Conference on Learning Representations **(ICLR 2024)**, ***Spotlight***

[C3] **Xiangyu Liu**, Souradip Chakraborty, Yanchao Sun, Furong Huang
Rethinking Adversarial Policies: A Generalized Attack Formulation and Provable Defense in RL
International Conference on Learning Representations **(ICLR 2024)**
Outstanding Paper Award at NeurIPS 2022 Workshop on Trustworthy and Socially Responsible Machine Learning.

[C2] **Xiangyu Liu**, Kaiqing Zhang
Partially Observable Multi-agent RL with (Quasi-)Efficiency: The Blessing of Information Sharing
International Conference on Machine Learning **(ICML 2023)**

[C1] **Xiangyu Liu**, Hangtian Jia, Ying Wen, Yujing Hu, Yingfeng Chen, Changjie Fan, Zhipeng Hu, Yaodong Yang
Towards Unifying Behavioral and Response Diversity for Open-ended Learning in Zero-sum Games
Conference on Neural Information Processing Systems **(NeurIPS 2021)**

EXPERIENCES

Google Research, CA, USA

Research intern with Market Algorithm team May. 2025 – Aug. 2025
Working with Zhe Feng, Aranyak Mehta, Di Wang

- Fundamental research on inference-time scaling techniques for LLM strategic decision-making, with an emphasis on the multi-agent negotiation games
- Developed a best-of-N (BoN) sampling with opponent simulation method, enabling feedback-driven in-context self-improving agents in repeated interaction

Bloomberg AI Group, NY, USA

Research intern June. 2022 – Sep. 2022

- Research on bond pricing with recurrent neural networks
- Developed a novel attention mechanism for dynamically capturing correlations among multiple time series

HONORS AND AWARDS

Outstanding Paper Award, NeurIPS 2022 Workshop on Trustworthy and Socially Responsible Machine Learning. 2022

Dean's Fellowship, University of Maryland, College Park. 2021

National Scholarship (Top 0.2% in China), Ministry of Education of P.R.China. 2018&2019

1st Prize in Chinese College Mathematics Competitions (Top 1 at SJTU, selected for final). 2018

A-class Scholarship for Excellent Academic Performance (Top 1% at SJTU), SJTU. 2018

TALKS

UVA RL meetup, online, 2025
Invited talk on partially observable RL with privileged information (paper [C6])

2024 INFORMS Optimization Society Conference (IOS 2024), Houston, Texas, 2024
Invited talk on multi-agent RL (paper [J1] and [C2])

TSRML workshop of NeurIPS 2022
Contributed talk on adversarial policies in competitive games (paper [C3])

RL China seminar series, online, China
Invited talk on unifying diversity in open-ended learning for zero-sum games (paper [C1])

ACADEMIC SERVICES

Conference reviewer for NeurIPS 2024-2025, ICML 2025, ICLR 2025, AISTATS 2025, UAI 2024-2025, AAMAS 2025, CDC 2025

TEACHING EXPERIENCE

Student organizer of summer AI camps at UMD for K-12 students Summer 2023/2024

TA for crypotography Spring 2022

TA for common sense reasoning in NLP Fall 2021

COMPUTER SKILLS

- Programming Languages: Python, C/C++, Java, MATLAB, LaTeX
- Deep Learning Packages: PyTorch, TensorFlow