Yi Tian

CONTACT tianyi.thu@gmail.com https://yi-t.github.io Google Scholar LinkedIn

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA, USA

Ph.D. in Electrical Engineering and Computer Science, 2024, **Presidential Fellowship**

Minor in Mathematics

Doctoral thesis: *Representation Learning for Control: Lessons from Partially Observable Linear Dynamical Systems*

Thesis committee: Suvrit Sra (advisor), Ali Jadbabaie, Russ Tedrake, John Tsitsiklis

M.S. in Electrical Engineering and Computer Science, 2021, GPA: 5.0/5.0

Master's thesis: *Online Reinforcement Learning in Factored Markov Decision Processes and Unknown Markov Games*

Tsinghua University, Beijing, China

B.E. in Automation, Jul. 2019, GPA: 3.93/4.0, **Top Grade Scholarship (10/3600)**

Bachelor's thesis: *Asynchronous and Distributed Training of Deep Neural Networks*

Outstanding Graduate Awards, both Tsinghua University and City of Beijing

Pre-college: **Silver Medal** in the 30th Chinese Physics Olympiad (2013)

SKILLS

Generative AI, Reinforcement Learning, Control Theory, Game Theory, Robotics, Optimization

CURRENT POSITION

Meta, Bellevue, WA, USA Sep. 2024 – Present

Research Scientist at the Business AI Agent team

- Comprehensive evaluation of real-world AI agents using LLMs (LLM as a judge)
- Multi-lingual synthetic data generation for AI agent fine-tuning

EXPERIENCE

Amazon, Cambridge, MA, USA May. 2022 – Aug. 2022

Applied Scientist Intern at the Robotics AI team

- NeRF-based training of dense descriptors for bin manipulation

Amazon, Palo Alto, CA, USA Jun. 2021 – Aug. 2021

Applied Scientist Intern at the Search AI team

- Multi-task training of deep-learning-based ranking models

Massachusetts Institute of Technology, Cambridge, MA, USA Sep. 2019 – Aug. 2024

Research Assistant with Suvrit Sra, Laboratory for Information and Decision Systems

- Provable state representation learning for control (also with Russ Tedrake, Kaiqing Zhang)
- Sample-efficient reinforcement learning in Markov decision processes and Markov games

Massschussets Institute of Technology, Cambridge, MA, USA Jan. 2022 – May 2022

Teaching Assistant for *Dynamic Programming and Reinforcement Learning* by John Tsitsiklis

SELECTED PUBLICATIONS

Yi Tian, Kaiqing Zhang, Russ Tedrake, Suvrit Sra. Cost-Driven Representation Learning for Linear Quadratic Gaussian Control.

- Part I: Can Direct Latent Model Learning Solve Linear Quadratic Gaussian Control? *5th Annual Learning for Dynamics & Control Conference (L4DC)*, 2023. (**Oral**)
- Part II: Toward Understanding State Representation Learning in MuZero: A Case Study in Linear Quadratic Gaussian Control. *62nd IEEE Conference on Decision and Control (CDC)*, 2023.

Yi Tian*, Yuanhao Wang*, Tiancheng Yu*, Suvrit Sra. Online Learning in Unknown Markov Games. *38th International Conference on Machine Learning (ICML)*, 2021.

Yi Tian*, Jian Qian*, Suvrit Sra. Towards Minimax Optimal Reinforcement Learning in Factored Markov Decision Processes. *34th Conference on Neural Information Processing Systems (NeurIPS)*, 2020. (**Spotlight**)

Yansong Tang*, **Yi Tian***, Peiyang Li, Jiwen Lu, Jie Zhou. Deep Progressive Reinforcement Learning for Skeleton-Based Action Recognition. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018.