

Yi Tian

CONTACT INFORMATION	77 Massachusetts Ave, 32-D572 Massachusetts Institute of Technology Cambridge, MA 02139	+1 (617) 949-1178 yitian@mit.edu http://yi-t.github.io
RESEARCH INTERESTS	Machine/Reinforcement Learning, Control Theory, Robotics, Optimization, Game Theory, and their intersections.	
EDUCATION	Massachusetts Institute of Technology , Cambridge, MA, USA Ph.D. Student in Electrical Engineering and Computer Science Minor in Mathematics M.S. in Electrical Engineering and Computer Science, May 2021 Tsinghua University , Beijing, China B.E. in Automation, Jul. 2019	
RESEARCH EXPERIENCE	Massachusetts Institute of Technology , Cambridge, MA, USA Aug. 2019 – Present Research Assistant with Suvrit Sra, Laboratory for Information and Decision Systems <ul style="list-style-type: none">• Sample-efficient representation learning for control (also with Russ Tedrake, Kaiqing Zhang)• Sample-efficient reinforcement learning in Markov decision processes and Markov games Tsinghua University Oct. 2018 – Jun. 2019 Research Assistant with Keyou You, Institute of System Integration <ul style="list-style-type: none">• Asynchronous and decentralized distributed training of deep neural networks Tsinghua University Nov. 2016 – Jun. 2018 Research Assistant with Jiwen Lu, Intelligent Vision Group <ul style="list-style-type: none">• Deep progressive reinforcement learning for skeleton-based action recognition• Egocentric hand segmentation and its facilitation for action recognition	
INDUSTRIAL EXPERIENCE	Amazon Robotics , Cambridge, MA, USA May. 2022 – Aug. 2022 Applied Scientist Intern, Manager: Paul Birkmeyer, Mentor: Yifan Hou <ul style="list-style-type: none">• NeRF-based training of dense descriptors for bin manipulation Amazon Search , Palo Alto, CA, USA Jun. 2021 – Aug. 2021 Applied Scientist Intern, Manager: Sujay Sanghavi, Mentor: Han Cheng <ul style="list-style-type: none">• Multi-task training of ranking models	
TEACHING EXPERIENCE	Massachusetts Institute of Technology , Cambridge, MA, USA Jan. 2022 – May 2022 Teaching Assistant for 6.231 Dynamic Programming and Reinforcement Learning <ul style="list-style-type: none">• Taught for the first time in recent years by John Tsitsiklis, many materials newly designed• Class size about 70, overall subject rating 6.0/7.0, TA rating 6.6/7.0	
PUBLICATIONS & MANUSCRIPTS	Yi Tian , Kaiqing Zhang, Russ Tedrake, Suvrit Sra. Toward Understanding Latent Model Learning in MuZero: A Case Study in Linear Quadratic Gaussian Control. Under review. Yi Tian , Kaiqing Zhang, Russ Tedrake, Suvrit Sra. Can Direct Latent Model Learning Solve Linear Quadratic Gaussian Control? <i>5th Annual Learning for Dynamics & Control Conference (L4DC)</i> , 2023. (Oral) Ali Jadbabaie, Haochuan Li, Jian Qian, Yi Tian . Byzantine-Robust Federated Linear Bandits. <i>61st IEEE Conference on Decision and Control (CDC)</i> , 2022.	

Haochuan Li, **Yi Tian**, Jingzhao Zhang, Ali Jadbabaie. Complexity Lower Bounds for Nonconvex Strongly-Concave Min-Max Optimization. *35th Conference on Neural Information Processing Systems (NeurIPS)*, 2021.

Tiancheng Yu, **Yi Tian**, Jingzhao Zhang, Suvrit Sra. Provably Efficient Algorithms for Multi-Objective Competitive RL. *38th International Conference on Machine Learning (ICML)*, 2021. (**Long talk**)

Yi Tian*, Yuanhao Wang*, Tiancheng Yu*, Suvrit Sra. [5] 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**)

Congyue Deng*, **Yi Tian***. Towards Understanding the Trade-off Between Accuracy and Adversarial Robustness. *International Conference on Machine Learning Workshop on Security and Privacy (ICMLW)*, 2019.

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.

Yansong Tang, **Yi Tian**, Jiwen Lu, Jianjiang Feng, Jie Zhou. Action Recognition in RGB-D Egocentric Videos. *IEEE International Conference on Image Processing (ICIP)*, 2017.

PRESENTATIONS	<i>Can Direct Latent Model Learning Solve Linear Quadratic Gaussian Control?</i>	
	• 28th Annual LIDS Student Conference, MIT	Feb. 2, 2023
	• LIDS & Stats Tea Talk, MIT	Dec. 7, 2022
	<i>Online Learning in Unknown Markov Games</i>	
	• LIDS & Stats Tea Talk, MIT	Oct. 6, 2021
	<i>Towards Minimax Optimal Reinforcement Learning in Factored Markov Decision Processes</i>	
	• 26th Annual LIDS Student Conference, MIT	Feb. 3, 2021
AWARDS	Presidential Fellowship , Massachusetts Institute of Technology	2019
	Excellent Graduate Awards , both Tsinghua University and City of Beijing	2019
	Excellent Undergraduate Thesis , Tsinghua University	2019
	Top Grade Scholarship (10/3600) , Tsinghua University	2018
	Qualcomm Scholarship , Tsinghua University	2017
	Silver Medal in the 30th National Physics Olympiad , Chinese Physics Society	2013
ACADEMIC SERVICE	Reviewer	
	IEEE Conference on Decision and Control (CDC), 2023	
	International Conference on Artificial Intelligence and Statistics (AISTATS), 2023	
	Conference on Neural Information Processing Systems (NeurIPS), 2022 & 2023	
	International Conference on Machine Learning (ICML), 2022 (top 10% reviewer) & 2023	
OUTREACH	Cultural Chair , Sidney-Pacific Graduate Residence, MIT	May 2021 – Apr. 2023
	Organized cultural movie series and cultural festivals	
	President , 11th Spark Talent Program, Tsinghua University	Sep. 2017 – Jun. 2019
	Organized ten-day industrial visit to Germany and other community building events	
	Vice President , Student Association of Science and Technology, Department of Automation, Tsinghua University	Sep. 2017 – Jun. 2018
	Co-organized Tsinghua Electronics Design Competition and Programming Competition	
SKILLS	Programming: Python (Pytorch/TensorFlow/Keras), C/C++, MATLAB, Julia	
	Languages: Chinese (native), English (fluent), German/French/Spanish (elementary)	