

## Yi Tian

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CONTACT INFORMATION	77 Massachusetts Ave, 32-D572 Massachusetts Institute of Technology Cambridge, MA 02139	+1 (617) 949-1178 yitian@mit.edu <a href="http://yi-t.github.io">http://yi-t.github.io</a>
RESEARCH INTERESTS	Machine/Reinforcement Learning, Control Theory, Robotics, Optimization, Game Theory, and their intersections	
EDUCATION	<b>Massachusetts Institute of Technology</b> , 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  <b>Tsinghua University</b> , Beijing, China B.E. in Automation, Jul. 2019	
RESEARCH EXPERIENCE	<b>Massachusetts Institute of Technology</b> , Cambridge, MA, USA      Aug. 2019 – Present Research Assistant with Suvrit Sra, Laboratory for Information and Decision Systems <ul style="list-style-type: none"><li>• Sample-efficient representation learning for control (also with Russ Tedrake, Kaiqing Zhang)</li><li>• Sample-efficient reinforcement learning in Markov decision processes and Markov games</li></ul> <b>Tsinghua University</b> Oct. 2018 – Jun. 2019 Research Assistant with Keyou You, Institute of System Integration <ul style="list-style-type: none"><li>• Asynchronous and decentralized distributed training of deep neural networks</li></ul> <b>Tsinghua University</b> Nov. 2016 – Jun. 2018 Research Assistant with Jiwen Lu, Intelligent Vision Group <ul style="list-style-type: none"><li>• Deep progressive reinforcement learning for skeleton-based action recognition</li><li>• Egocentric hand segmentation and its facilitation for action recognition</li></ul>	
INDUSTRIAL EXPERIENCE	<b>Amazon Robotics</b> , Cambridge, MA, USA      May. 2022 – Aug. 2022 Applied Scientist Intern, Manager: Paul Birkmeyer, Mentor: Yifan Hou <ul style="list-style-type: none"><li>• NeRF-based training of dense descriptors for bin manipulation</li></ul> <b>Amazon Search</b> , Palo Alto, CA, USA      Jun. 2021 – Aug. 2021 Applied Scientist Intern, Manager: Sujay Sanghavi, Mentor: Han Cheng <ul style="list-style-type: none"><li>• Multi-task training of ranking models</li></ul>	
PUBLICATIONS & MANUSCRIPTS	<b>Yi Tian</b> , Kaiqing Zhang, Russ Tedrake, Suvrit Sra. Toward Understanding Latent Model Learning in MuZero: A Case Study in Linear Quadratic Gaussian Control. Under review. <b>Yi Tian</b> , Kaiqing Zhang, Russ Tedrake, Suvrit Sra. Can Direct Latent Model Learning Solve Linear Quadratic Gaussian Control? <i>5th Annual Learning for Dynamics &amp; Control Conference (L4DC)</i> , 2023. ( <b>Oral</b> ) Ali Jadbabaie, Haochuan Li, Jian Qian, <b>Yi Tian</b> . Byzantine-Robust Federated Linear Bandits. <i>61st IEEE Conference on Decision and Control (CDC)</i> , 2022. Haochuan Li, <b>Yi Tian</b> , Jingzhao Zhang, Ali Jadbabaie. Complexity Lower Bounds for Nonconvex-Strongly-Concave Min-Max Optimization. <i>35th Conference on Neural Information Processing Systems (NeurIPS)</i> , 2021. Tiancheng Yu, <b>Yi Tian</b> , Jingzhao Zhang, Suvrit Sra. Provably Efficient Algorithms for Multi-Objective Competitive RL. <i>38th International Conference on Machine Learning (ICML)</i> , 2021. ( <b>Long talk</b> )	

**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.

AWARDS	<b>Presidential Fellowship</b> , Massachusetts Institute of Technology	2019
	<b>Excellent Graduate Awards</b> , both Tsinghua University and City of Beijing	2019
	<b>Excellent Undergraduate Thesis</b> , Tsinghua University	2019
	<b>Top Grade Scholarship (10/3600)</b> , Tsinghua University	2018
	<b>Qualcomm Scholarship</b> , Tsinghua University	2017
	<b>Silver Medal in the 30th National Physics Olympiad</b> , Chinese Physics Society	2013

TEACHING EXPERIENCE	<b>Massachusetts Institute of Technology</b> , Cambridge, MA, USA	Jan. 2022 – May 2022
	Teaching Assistant for 6.231 Dynamic Programming and Reinforcement Learning	
	<ul style="list-style-type: none"> <li>• Taught for the first time in recent years by John Tsitsiklis, many materials newly designed</li> <li>• Class size about 70, overall subject rating 6.0/7.0, TA rating 6.6/7.0</li> </ul>	

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

ACADEMIC SERVICE	<b>Reviewer</b>	
	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	<b>Cultural Chair</b> , Sidney-Pacific Graduate Residence, MIT	May 2021 – Apr. 2023
	Organized cultural movie series and cultural festivals	
	<b>President</b> , 11th Spark Talent Program, Tsinghua University	Sep. 2017 – Jun. 2019
	Organized ten-day industrial visit to Germany and other community building events	
	<b>Vice President</b> , 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)	