

EDUCATION

University of California San Diego Ph.D. in Computer Science and Engineering, Advisor: Prof. Hao Su	San Diego, USA 2019 - Current
University of California San Diego M.S. in Computer Science and Engineering, GPA: 4.0/4.0	San Diego, USA 2017 - 2019
Zhejiang University B.Eng. in Computer Science and Technology, GPA: 3.8/4.0, Major GPA: 3.97/4.00	Hangzhou, China 2013 - 2017

RESEARCH INTERESTS

My long-term research goal is to build a **decision-making framework with strong generalizability**. Specifically, I am interested in **Reinforcement Learning / Imitation Learning, Concept Discovery and Reasoning, and Robotics / Embodied AI**.

PUBLICATIONS

- [1] J. Gu, F. Xiang, X. Li, Z. Ling, X. Liu, **T. Mu**, Y. Tang, S. Tao, X. Wei, Y. Yao, X. Yuan, P. Xie, Z. Huang, R. Chen, and H. Su, “Maniskill2: A unified benchmark for generalizable manipulation skills”, in *International Conference on Learning Representations (ICLR)*, 2023.
- [2] X. Zhang, R. Chen, A. Li, F. Xiang, Y. Qin, J. Gu, Z. Ling, M. Liu, P. Zeng, S. Han, Z. Huang, **T. Mu**, J. Xu, and H. Su, “Close the optical sensing domain gap by physics-grounded active stereo sensor simulation”, *IEEE Transactions on Robotics (T-RO)*, pp. 1–19, 2023.
- [3] **T. Mu**, K. Lin, F. Niu, and G. Thattai, “Learning two-step hybrid policy for graph-based interpretable reinforcement learning”, *Transactions on Machine Learning Research (TMLR)*, 2022.
- [4] **T. Mu**, Z. Ling, F. Xiang, D. C. Yang, X. Li, S. Tao, Z. Huang, Z. Jia, and H. Su, “Maniskill: Generalizable manipulation skill benchmark with large-scale demonstrations”, in *Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track*, 2021.
- [5] **T. Mu**, J. Gu, Z. Jia, H. Tang, and H. Su, “Refactoring policy for compositional generalizability using self-supervised object proposals”, in *Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS)*, 2020.
- [6] F. Liu, Z. Ling, **T. Mu**, and H. Su, “State alignment-based imitation learning”, in *International Conference on Learning Representations (ICLR)*, 2019.
- [7] X. Liu, **T. Mu**, and H. Su, “Transfer value or policy? a value-centric framework towards transferrable continuous reinforcement learning”, in *Deep Reinforcement Learning Workshop at NeurIPS*, 2018.
- [8] Z. Shen, H. Qian, **T. Mu**, and C. Zhang, “Accelerated doubly stochastic gradient algorithm for large-scale empirical risk minimization.”, in *International Joint Conference on Artificial Intelligence (IJCAI)*, 2017.
- [9] Z. Shen, H. Qian, T. Zhou, and **T. Mu**, “Adaptive variance reducing for stochastic gradient descent.”, in *International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.

UNDER REVIEW SUBMISSIONS & PREPRINTS

* indicates equal contribution.

1. **Tongzhou Mu**, Minghua Liu, and Hao Su, “Learning Reusable Dense Rewards for Multi-Stage Tasks”, Submitted to *International Conference on Machine Learning (ICML)*, 2023
2. Nicklas Hansen*, Zhecheng Yuan*, Yanjie Ze*, **Tongzhou Mu***, Aravind Rajeswaran+, Hao Su+, Huazhe Xu+, and Xiaolong Wang+, “On Pre-Training for Visuo-Motor Control: Revisiting a Learning-from-Scratch Baseline”, Submitted to *International Conference on Machine Learning (ICML)*, 2023
3. Stone Tao, Xiaochen Li, **Tongzhou Mu**, Zhiao Huang, Yuzhe Qin, and Hao Su, “Abstract-to-Executable Trajectory Translation for One-Shot Task Generalization”, Submitted to *International Conference on Machine Learning (ICML)*, 2023

INVITED TALKS

- **Pre-training Robot Learning Workshop at CoRL 2022** Dec 2022
Topic: On Pre-Training for Visuo-Motor Control: Revisiting a Learning-from-Scratch Baseline
- **Stanford Vision and Learning Lab** Dec 2021
Topic: Generalizable Manipulation Skill Benchmark with Large-Scale Demonstrations
- **UC Berkeley Robot Learning Lab** Nov 2021
Topic: Generalizable Manipulation Skill Benchmark with Large-Scale Demonstrations
- **Qualcomm AI Lab** Mar 2020
Topic: Task-driven Entity Abstraction from Visual Observations

INDUSTRY EXPERIENCES

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|---|---|
| Amazon Alexa AI
Full-Time Applied Scientist Intern
– Project: Interpretable RL for Text-Based Games with Graph Inputs | Sunnyvale, United States
Summer 2021 |
| Wormpex AI Research
Full-Time Research Intern
– Project: Store Layout Optimization based on Customer Behavior Model | Remote, United States
Summer 2020 |
| Intel AI
Full-Time Research Intern
– Project: Memory-Constrained Navigation via Combining RL and Planning | San Diego, United States
Summer 2019 |
| Microsoft Research Asia
Full-Time Research Intern at Visual Computing Group
– Project: Indoor Visual Navigation by Deep RL | Beijing, China
Apr 2017 - Aug 2017 |

PROFESSIONAL SERVICES

Academic Event Organizer

- SAPIEN ManiSkill Challenge 2021(**Lead Organizer**)
- ICLR 2022 Workshop “Generalizable Policy Learning in the Physical World” (**Lead Organizer**)
- CVPR 2022 Tutorial “Building and Working in Environments for Embodied AI”

Reviewer

- Conference Reviewer: ICLR, NeurIPS, ICRA, IROS, ICCV, AAAI
- Journal Reviewer: RA-L

TEACHING

- **Consultant Volunteer** at UC San Diego Fall 2020
CSE291-J00: Deep Learning Lab (Computer Vision)
- **Teaching Assistant** at UC San Diego Fall 2018
CSE 152: Introduction to Computer Vision

AWARDS AND HONORS

- ACM-ICPC (International Collegiate Programming Contest) Asia Regional Contest **Gold Medal** 2015
- China Computer Federation Elite Collegiate Award (top 108 in China) 2016
- Award of Excellence for Stars of Tomorrow Internship Program, Microsoft Research Asia 2017