

Xinhu Li

TEA Lab
IIIS, Tsinghua University

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RESEARCH INTERESTS

My ultimate research goal is to develop robust and generalizable agents that learn how to solve tasks in unstructured environments. To achieve this goal, I am particularly interested in:

- Develop robust algorithms to boost generalization abilities across diverse tasks and environments.
- Developing autonomous algorithms that require minimal human oversight.

Key Fields: Robotics, Reinforcement Learning, Machine Learning, Decision Making

EDUCATION

University of Southern California, Viterbi School of Engineering Aug. 2020 - Dec. 2022
M.S. in Artificial Intelligence, GPA: 3.81/4.00

Zhejiang University of Technology Sept. 2016 - Jun. 2020
B.Eng. in Software Engineering, GPA: 3.73/5.00 (top 5%)

RESEARCH EXPERIENCE

Research Assistant, TEA Lab, Tsinghua University Oct.2025 - Present
Advisor: Prof. Huazhe Xu
- Offline data augmentation for generating corrective demonstrations for policy learning.

Research Assistant, Lira Lab, University of Southern California Oct. 2023 - Oct.2025
Advisor: Prof. Erdem Biyik
- Inverse reinforcement learning to surpass the performance of constrained demonstrators.

Research Assistant, CLVR Lab, University of Southern California May 2022 - Oct. 2023
Advisor: Prof. Joseph J. Lim
- Efficient reinforcement learning for environments with substantial sub-optimal options.

CONFERENCE PAPERS

[ICLR 2026] **Xinhu Li**, Ayush Jain, Zhaojing Yang, Yigit Korkmaz, Erdem Biyik. “When a Robot is More Capable than a Human: Learning from Constrained Demonstrators”

- Propose a reward function based on task progress to help policies outperform expert demonstrations.
- Consistently outperforms existing methods across manipulation and navigation tasks.

[RLC 2025] Ayush Jain*, Norio Kosaka*, **Xinhu Li**, Kyung-Min Kim, Joseph J. Lim. “Mitigating Sub-optimality of Deterministic Policy Gradients in Complex Q-functions.” *Outstanding Paper Award on Empirical Reinforcement Learning Research*

- Proposed a successive actor-critic structure for more effective action selection in actor-critic RL.
- Significantly improves the return in navigation, recommendation systems, and locomotion tasks.

ACHIEVEMENTS

- Silver Award, China Collegiate Programming Contest 2018, **Final. (Rank 16)**
- **First Prize**, Group Programming Ladder Tournament, China Collegiate Computing Contest
- Scholarship of Zhejiang Provincial Government (**top 3%**)
- **Gold Award**, The 2017 ACM-ICPC Asia Xi'an Regional Contest
- Silver Award, The 2017 ACM-ICPC Asia ShenYang Regional Contest
- **Gold Award**, China Collegiate Programming Contest, GuiLin
- Silver Award, China Collegiate Programming Contest, JiLin

OTHER EXPERIENCE

Teaching Assistant, Database Systems, USC (Prof. Sathyanaraya Raghavachary) Spring 2022
– Developed course homework and held weekly office hours (four hours/week) for student support.

TECHNICAL STRENGTHS

- **Machine Learning/Robotics:** ROS, PyTorch, Tensorflow, Matplotlib
- **Programming Language:** Python, JAVA, C++/ C, C#, R, SQL
- **Relevant Courses:** Robotics, Machine Learning, Deep Reinforcement Learning, Computational Human Robot Interaction, Linear Algebra