Xinhu Li

Lira Lab
Computer Science Department, USC

https://xhlsgit.github.io
lixinhu98@gmail.com

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 RL algorithms to boost generalization abilities across diverse tasks and environments.
- Developing autonomous RL 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, Lira Lab, University of Southern California Oct. 2023 - Present
Advisor: Prof. Erdem Biyik
[In Submission] **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.

Research Assistant, CLVR Lab, University of Southern California May 2022 - Oct. 2023
Advisor: Prof. Joseph J. Lim
[RLC 2025] Ayush Jain*, Norio Kosaka*, **Xinhu Li**, Kyung-Min Kim, Joseph J. Lim. "Rethinking Actor-Critic: Successive Actors for Critic Maximization." *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.

Research Assistant, Institute of Digital Media Technology, ZJUT Aug. 2019 - May 2020
Advisor: Prof. Meiyu Zhang
[Graduation Thesis] **Xinhu Li**, Meiyu Zhang "Research and Implementation of Deep HDR Video Synthesis"

- Developed a custom LSTM for HDR video synthesis from footage with varying exposure times.
- Enhanced video quality substantially while remaining memory and compute-efficient.

Achievements

- Silver Award, China Collegiate Programming Contest, **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

Teaching

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