Xinhu Li

CLVR Lab, Lira Lab
Computer Science Department, USC

https://xhlsgit.github.io
xinhuli@usc.edu

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 the following:

- Develop representation learning algorithms to enhance agents' learning efficiency and effectiveness.

- Utilize foundation models to boost generalization abilities across diverse tasks and environments.

- Develop self-adapting RL algorithms for minimal human oversight and autonomous decision-making.

Key Fields: Robotics, Reinforcement Learning, Machine Learning

EDUCATION

University of Southern California, Viterbi School of Engineering   Aug. 2020 - Dec. 2022
MS in Artificial Intelligence, GPA: 3.81/4

Zhejiang University of Technology   Sept. 2016 - June 2020
B.S. in Software Engineering, GPA: 3.76/5 **(top 5%)**

RESEARCH EXPERIENCE & COMPETITION

Research Assistant, Lira Lab, University of Southern California   Oct. 2023 – present
Advisor: Prof. Erdem Biyik
[Target: ICML 2024] **Xinhu Li***, Ayush Jain*, Zhaojing Yang, Joseph J. Lim, Erdem Biyik. "Beyond Policy Transfer: Self-Supervised Reward Adaptation"

- Introduce self-supervised reward adaptation for adapting policies without human assistance.

- Exceeds all other adaptation methods in manipulation and locomotion environment adaptation.

Research Assistant, CLVR Lab, University of Southern California   May. 2022 – Oct. 2023
Advisor: Prof. Joseph J. Lim
[**Submitted** to ICLR 2024] Ayush Jain*, Norio Kosaka*, **Xinhu Li**, Kyung-Min Kim, Joseph J. Lim. "Rethinking Actor-Critic: Successive Actors for Critic Maximization."

- Propose a successive Actor-Critic structure for effective max-action selection in actor-critic RL.

- Significantly improves the return in Minigrid, Reccomandation System, and Mujoco-Gym.

Research Assistant, Institute of Digital Media Technology, ZJUT   July. 2019 – May. 2020
Advisor: Prof. Meiyu Zhang
[Patent pending] **Xinhu Li**, Meiyu Zhang "Research and Implementation of Deep HDR Video Synthesis"

- Introduce LSTM to generate high-quality videos by synthesizing footage with varying exposure times.

- Enhanced video quality substantially using a compact, efficient neural network.

Research Assistant, MoE Key Lab of Network and Software Security Assurance, Peking University   July. 2019 – Aug. 2019
Advisor: Prof. Zhong Chen
Aspect-based Sentiment Analysis(ABSA) with Bi-LSTM structure

- Introduce Bi-LSTM architecture for ABSA to enhance precision in extracting sentiment components.
- Bi-LSTM architecture enables generalization through whole content, improving extraction accuracy.

Team Leader, ICPC Competition, Zhejiang University of Technology   Jan. 2017 – Jan. 2020
- Demonstrate algorithmic skills by solving a set of algorithmic problems within a limited time frame.
- Achieved 16th rank in a national competition; detailed rewards under Achievements.

Leadership Activities

Team Leader, ACM-ICPC & CCPC Contests   Jan. 2017 – Jan. 2020

Group Leader, Communication Club between Students and University Jan. 2016 – Jan. 2018

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

Technical Strengths

- **Robot Learning Proficiency:** ROS, PyTorch, Tensorflow, Matplotlib
- **English Proficiency:**
  - **TOEFL** : Reading 26, Listening 26, Speaking 24, Writing 24
  - **GRE** : Quantitative: 170, Verbal: 156, Analytical Writing 3.5
- **Programming Language:** Python, JAVA, C++/ C, C#, R, SQL
- **Relevant Courses:** Robotics, Machine Learning, Deep Reinforcement Learning, Computational Human Robot Interaction, Linear Algebra