Yiyang LING

✉ Email | ⌂ Homepage | Github | GoogleScholar

Introduction

My research interest lies in robotics and computer vision. Currently, I am working on generating robotic simulation tasks with Large Language Models (LLMs), to scale up simulation benchmark and distill knowledge to robotic policies.

Education

Shanghai Jiao Tong University *Shanghai, China*
Bachelor in Computer Science *Sept 2020 - Jun 2024 (Expected)*

- Member of **ACM Honors Class**
- **Selected Courses:** Mathematical Analysis (94), Scientific computing (99), Math Tools in Computer Science (99), Machine Learning (93), Computational Complexity (98), Deep Learning and Its Applications (97), Model Checking (96), Reinforcement Learning (92)

Research Experience

Wang Lab *University of California San Diego*
Visiting Undergraduate, advised by Prof. **Xiaolong Wang** *Jun 2023 - Dec 2023*

- Designed a novel simulation task generation pipeline through LLMs to generate over 100 achievable manipulation tasks, which scaled up simulation benchmark and automated domain randomization and expert demonstrations.
- Leveraged the generated tasks for training multitask policies, and conducted experiments on their generalization capabilities in both simulation (PyBullet simulator) and the real world (xArm robot), with a 25% increase in success rate.

Machine Vision and Intelligence Group *Shanghai Jiao Tong University*
Undergraduate Research Assistant, advised by Prof. **Cewu Lu** *Sept 2022 - Feb 2023*

- Implemented keypoint detectors, SuperPoint and UKPGAN, and conducted extensive experiments on 3 object detection datasets, focusing on deformable objects.
- Proposed leveraging the CPPF framework, which is a category-level point-pair-feature voting method, and adapting it for object tracking, and conducted experiments on different datasets, such as LaSOT and VOT2017.

Course Projects

Quantum Inspired Tensorized Cross-Network Embedding
Project for Deep Learning and Its Application *Fall 2022*

- Proposed a scalable tensorized cross-network embedding method based on contrastive learning by introducing the utilization of CP Decomposition and intra/inter-network sub-embeddings, which saved over 20 times the storage space and simultaneously accelerated the speed of embedding learning by 10 times compared to traditional baselines.

Compiler for Mx*
Project for Compiler Design and Implementation *Spring 2022*

- Designed and implemented a compiler from Mx*, a simplified programming language similar to C++, to RV32I instructions.

RISC-V CPU
Project for Computer Architecture *Fall 2021*

- Designed and implemented a five-stage CPU pipeline supporting most part of RV32I Instruction set using Verilog.

Publications

GenSim: Generating Robotic Simulation Tasks via Large Language Models
  Lirui Wang, **Yiyang Ling***, Zhecheng Yuan*, Mohit Shridhar, Chen Bao, Yuzhe Qin, Bailin Wang, Huazhe Xu, Xiaolong Wang
  *Workshop on Language Grounding and Robot Learning, CoRL 2023 (**Best Paper**); International Conference on Learning Representations (ICLR), 2024 (**Spotlight**)*

Professional Experience

Reviewer, Workshop on Language Grounding and Robot Learning of CoRL 2023
Teaching Assistant of Algorithm Design and Analysis, ACM Honors Class of 25'
Teaching Assistant of Reinforcement Learning, ACM Honors Class of 25'

Awards and Honors

2023	**Scholarship**, Longhu Scholarship	*Longfor Foundation*
2020-2023	**Scholarship**, Zhiyuan College Honors Scholarship (Top 5% in SJTU each year)	*Shanghai Jiao Tong University*
2020-2023	**Scholarship**, Scholarship for Outstanding Undergraduates	*Shanghai Jiao Tong University*

Skills

Programming   Python, C++, Rust, Java, Verilog.
Miscellaneous   xArm, SAPIEN, PyBullet, IssacGym, CUDA, Docker, Pytorch, LaTeX, Git.