

Yiyang LING

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Area of Interest

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:** Scientific computing (99/100), Math Tools in Computer Science (99/100), Computational Complexity (98/100), Deep Learning and Its Applications (97/100), Model Checking (96/100)

Research Experience

Wang Lab

University of California San Diego

Visiting Undergraduate, advised by Prof. **Xiaolong Wang**

Jun 2023 - Present

- Working on exploiting LLMs' grounding and coding ability and distilling knowledge to robotic policies.
- Designed a novel simulation task generation pipeline through LLMs to generate over 100 achievable manipulation tasks.
- Scaled up simulation benchmark, automated domain randomization and expert demonstrations.
- Leveraged the generated tasks for training multitask policies, evaluated their generalization capabilities in both simulation and the real world.

Machine Vision and Intelligence Group

Shanghai Jiao Tong University

Undergraduate Research Assistant, advised by Prof. **Cewu Lu**

Sept 2022 - Feb 2023

- Conducted in-depth study of foundational concepts in computer vision, learned a solid theoretical framework for research advancements.
- Conducted research on developing universal self-supervised keypoint detectors to enhance their ability to reconstruct original object shapes.
- Proposed improvements to the foundational voting scheme of the CPPF framework, a category-level point pair feature voting method.

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.
- Achieved to save storage space and accelerate embedding learning simultaneously in a unified training pipeline.

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

Best Paper at Workshop on Language Grounding and Robot Learning, CoRL 2023

TC-CNE: Scalable and Efficient Contrastive Cross-Network Embedding via Tensorized Representation

Hao Xiong, **Yiyang Ling**, Jianhao Huang, Junchi Yan

Under Review

Professional Experience

CoRL 2023 Workshop

Reviewer

Shanghai Jiao Tong University

Teaching Assistant of **Algorithm Design and Analysis**

Spring 2023

Awards and Honors

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 CUDA, Docker, Pytorch, **L^AT_EX**, SQL, Git, Matlab.