

# 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 and Vision Language Models, in order 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

### University of California San Diego

San Diego, US

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

Jun 2023 - Present

- Working on Exploiting Large language models' grounding and coding ability and distilling knowledge to robotic policies.
- Designed a novel simulation task generation pipeline through Large Language Models and Vision Language Models to generate achievable and diverse manipulation tasks.
- Scaled up simulation benchmark and automated domain randomization and expert demonstrations.
- Leveraged the generated tasks for training multitask policies and evaluating their generalization capabilities in both simulation and the real world.

### Shanghai Jiao Tong University

Shanghai, China

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

Sept 2022 - Feb 2023

- Engaged in an in-depth study of foundational concepts in computer vision and learned a solid theoretical framework for practical applications and research advancements.
- Conducted research focused on developing universal self-supervised 3D keypoint detectors to enhance the detectors' 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

## Work Experience

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### CoRL 2023 Workshop

Reviewer

### Shanghai Jiao Tong University

Teaching Assistant of **Algorithm Design and Analysis**

*Spring 2023*

## Awards and Honors

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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

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**Programming** Python, C++, Rust, Java, Verilog.

**Miscellaneous**  $\text{\LaTeX}$ , SQL, Git, Matlab.

**Language** English, Chinese.