

# Zeju Li

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## EDUCATION

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### Zhejiang University

Hangzhou, Zhejiang, China

*B.Eng in Computer Science and Technology*

- College of Computer Science and Technology *Sept. 2025 - Present*
- Mixed Class, [Chu Kochen Honors College](#) *Sept. 2023 - June. 2025*

## RESEARCH INTEREST

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I'm passionate about developing truly intelligent robots, enabling general-purpose robot autonomy in human-centric environments. My research primarily lies in generalizable behavior planning and action learning for complex, long-horizon tasks by developing algorithms that integrate world models, imitation learning, and reinforcement learning.

## RESEARCH EXPERIENCE

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### Zhejiang University

Hangzhou, Zhejiang, China

*Research Assistant at State Key Lab of CAG&CG*

*Oct. 2024 - Present*

*Advised by Prof. Chen Hao and Prof. Chunhua Shen*

#### Model-based Reinforcement Learning with Compact State Representations

*Oct. 2025 - Present*

- Try to integrate the compact state representations with model-based reinforcement learning process to help with reward estimation.
- Try to build thinking-with-states and chain-of-thoughts mechanism in both high-level task planning and low-level robot manipulation control.

#### Reconstructing, Generating, and Retargeting Hand-Object Interactions

*Sept. 2025 - Nov. 2025*

- Try to propose a framework for interaction reconstruction, generation, and retargeting to simulation environments from hand-object interaction.
- Try to build a novel pipeline of generating data for dexterous manipulation from hand-object videos on the Internet.

#### Compact State Representations for Efficient World Modeling and Action Learning

*July. 2025 - Sept. 2025*

- Introduced an unsupervised approach that learns a highly compressed two-token state representation, which is efficient, interpretable, and integrates seamlessly into existing VLA-based models.
- Studied the representation to find an emergent capability where the difference between representation tokens functions as a highly effective latent action, decodable into executable robot actions.
- Proposed an approach for learning generalizable robotic motion from static images via compact state representations, eliminating the need for complex architectures and video data.

#### Language-guided Long-horizon Mobile Manipulation

*June. 2025 - Aug. 2025*

- Built a unified mobile manipulation framework for agile quadruped robots equipped with manipulators, which seamlessly integrates high-level task planning with low-level whole-body control.
- Introduced a hierarchical vision-language planner that bridges egocentric perception and language-conditioned tasks, decomposing long-horizon instructions into executable actions.
- Proposed the first whole-body control policy that generalizes to challenging terrains while jointly coordinating locomobility and manipulation.
- Presented the first benchmark for long-horizon mobile manipulation, evaluating diverse indoor and outdoor scenarios.

## PUBLICATIONS

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### Preprints

#### ODYSSEY: Open-World Quadrupeds Exploration and Manipulation for Long-Horizon Tasks

Kaijun Wang<sup>\*</sup>, Liqin Lu<sup>\*</sup>, Mingyu Liu, Jianuo Jiang, Zeju Li, Bolin Zhang, Wancai Zheng, Xinyi Yu, Hao Chen<sup>†</sup>, Chunhua Shen<sup>†</sup>

*AAAI (Oral Presentation)*, 2026 [\[Paper\]](#) [\[Project Page\]](#)

#### StaMo: Unsupervised Learning of Generalizable Robot Motion from Compact State Representation

Mingyu Liu<sup>\*</sup>, Jiuhe Shu<sup>\*</sup>, Hui Chen, Zeju Li, Canyu Zhao, Jiange Yang, Shenyuan Gao, Hao Chen<sup>†</sup>, Chunhua Shen<sup>†</sup>

*CVPR*, 2026 [\[Paper\]](#) [\[Project Page\]](#)

#### AGILE: Hand-Object Interaction Reconstruction from Video via AgenticGeneration

JinChuan Shi<sup>\*</sup>, Binhong Ye<sup>\*</sup>, Tao Liu, Junzhe He, Yangjinhui Xu, Xiaoyang Liu, Zeju Li, Hao Chen<sup>†</sup>, Chunhua Shen<sup>†</sup>

*Preprint*, 2025 [\[Paper\]](#) [\[Project Page\]](#)

## PROJECTS

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### MiniSQL Database Management System

The course project of Database Systems and Concepts. Created a 20k-line MiniSQL database management system in C++ based on CMU-15445 BusTub framework. Architected and implemented its core components, including a Buffer Pool Manager (LRU/bitmap), a heap-based Record Manager, and a B+ Tree Index Manager.

### 32-bit RISC-V CPU

The course labs of Computer Organization and Design & Computer Architecture. Designed and implemented a 5-stage pipelined RISC-V CPU supporting the RV32I and partial RV32F instruction sets. Developed a custom ALU for floating-point operations and deployed the design on an FPGA using Verilog and Vivado.

### Parallel Optimization Practices

The course labs of High Performance Computing 101 summer course and competition project in Parallel Application Challenge (PAC) 2024.

## SKILLS

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**Programming** Python(Pytorch), C/C++, L<sup>A</sup>T<sub>E</sub>X, SQL, Linux

**Language** Chinese (Native), English (TOEFL 100/120, *Sept. 2025*)