Zhiyong He

Salt Lake City, UT

+1(385)439-2120 | zhiyong.he@utah.edu | minsuglly.github.io

Education

- **Zhejiang University** — **Hangzhou, China**
  B.S. Mechanics (**GPA:** 3.83/4.00) — *August 2021 – June 2025*
- **University of Utah** — **Salt Lake City, UT**
  Ph.D. Computer Graphics, advised by Prof. Yin Yang — *August 2025 – 2030(expected)*

Experience

Zhejiang University — **Hangzhou, China**
Research Assistant, advised by Prof. Rong Xiong — *October 2023 – April 2024*

- Developed a model-based reinforcement learning framework to control a robotic manipulator based on the relative pose between the robot arm and target objects.
- Designed the state representation using relative position and orientation features, enabling the policy to generalize across different object locations and task configurations.
- Built and trained dynamics and reward models to support planning and sample-efficient policy updates, improving data efficiency compared with model-free baselines.
- Implemented and evaluated the method in simulation (and/or on a real robot), demonstrating successful execution of specified manipulation tasks.

University of Utah — **Salt Lake City, UT**
Research Assistant, advised by Prof. Yin Yang — *July 2024 – February 2025*

- Integrated Affine Body Dynamics framework (ABD) into the robotic control stack to provide physically accurate forward dynamics for manipulator motion.
- Coupled the ABD simulation with the robot's controller to enable model-based control and prediction, improving stability and tracking under dynamic interactions with the environment.
- Implemented interfaces between the ABD engine and the robot middleware (e.g., state estimation, trajectory generator, and controller), supporting closed-loop testing in simulation and/or hardware.
- Evaluated the ABD-based controller on representative manipulation tasks, analyzing tracking error, robustness to disturbances, and computational performance.

Zhejiang University — **Hangzhou, China**
Research Assistant, advised by Prof. Shiyin Xiong — *May 2025 – July 2025*

- Analyzed the frequency spectra of underwater acoustic measurement units to study signal characteristics across different sensors in the array.
- Designed a neural network model to reconstruct the spectra of a subset of sensors from the spectra of the remaining sensors, aiming to reduce the number of required physical channels and enable virtual sensing.
- Preprocessed raw underwater acoustic data (filtering, normalization, spectral estimation) and built training/validation pipelines for supervised learning on sensor spectra.
- Evaluated reconstruction accuracy and robustness under different noise levels and sensor configurations, providing insights for sensor reduction, fault tolerance, and cost-efficient underwater acoustic measurement systems.

Skills

Languages: C/C++, Python, MATLAB, LaTeX, CMake
Software: Houdini, SolidWorks, Abaqus

Project

Alibaba Cloud Tianchi Global Intelligent Vehicle AI Challenge
Intelligent Driving Video Understanding Track. Finalist (5th place as a team) *November 2023 – December 2023*

- Built a video understanding pipeline for simulated autonomous driving data using CLIP, YOLO, and keypoint detection to analyze scene content.
- Inferred road environment and driving status from multi-frame visual information to support intelligent driving decision making.

Publications