Haoran Zhang

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EDUCATION

University of Michigan **Ann Arbor, MI**
Bachelor of Science (B.S.) in Computer science, Double Major in Data Science *Graduated May 2024*
Major GPA: 3.75/4.0
Master of Science (M.S.) in Computer science *Expected May 2026*
Major GPA: 4.0/4.0, Advisors: ***Prof. Chad Jenkins*** and ***Prof. Nima Fazeli***

National University of Singapore **Singapore**
Research Assistant, Advisor: ***Prof. Harold Soh*** *June 2025 – August 2025*
Related Course: Autonomous Robotics, Machine Learning, Algorithmic robotics, Introduction to robot manipulation

PUBLICATION

- *LoHR-Bench: A Dual-Level Benchmark for Extended Long-Horizon Robot Manipulation*
  Zhang, H.*, Xue, Z., Qiu, J., Dong, X., Zhou, M., Jiang, P., Wang, Y., Liu, S., Hao, C., & Soh, H**.** IEEE International Conference on Robotics and Automation ***(ICRA), 2026*,** Under Review [Project]
- *RoboVIP: Multi-View Video Generation with Visual Identity Prompting Augments Robot Manipulation*
  Wang, B.*, **Zhang, H.***, Zhang, S., Hao, J., Jia, M., Lv, Q., Mao, Y., Lyu, Z., Zeng, J., Xu, X., & Pang, J. IEEE/CVF Conference on Computer Vision and Pattern Recognition **(*CVPR*), 2026**, Under Review [Project]
- *StarBench: A Turn-Based RPG Benchmark for Agentic Multimodal Decision-Making and Information Seeking*
  Zhang, H.*, Zhu, C.*, Guo, S., Guo, H., Li, H., & Yu, D. International Conference on Autonomous Agents and Multiagent Systems **(*AAMAS*), 2026**, Under Review [Paper]
- *SO(2)-Equivariant Single-View 3D Reconstruction via Gaussian Sculpting Networks*
  Xu, R., Opipari, A., Mah, J., Lewis, S. R., **Zhang, H.**, Guo, H., & Jenkins, O. C. RSS 2024 Workshop on Geometric and Algebraic Structure in Robot Learning **GAS @ RSS 2024** [Paper]
- *IaC-Eval: A Code Generation Benchmark for Cloud Infrastructure-as-Code Programs*
  Kon, P. T. J., Liu, J., Qiu, Y., Fan, W., He, T., Lin, L.,**Zhang, H.** Park, O. M., Elengikal, G. S., Kang, Y., Chen, A., Chowdhury, M., Lee, M., & Wang, X. **NeurIPS 2024 (Datasets and Benchmarks Track)** [Paper]

RESEARCH EXPERIENCE

ProgressLab (Supervised by Chad Jenkins, Professor at University of Michigan). **Ann Arbor, MI**
Research Assistant *Feb 2024 – Current*
- Conducted real world data collection using the **LeRobot** toolkit in the kitchen environment, acquiring grasp datasets from both the Koch robotic arm and ReactorX-200 robot arms equipped with modified grippers (modeled after Aloha2) via teleoperation.
- Created 3DGS in **Genesis** and simulated the VLA policy future steps in simulation before execution in real world to prevent dangerous behavior

CLeARLab (Supervised by Harold Soh, Associate Professor at National University of Singapore). **Singapore**
Research Assistant *June 2025 – Current*
- Designed and implemented 22 long-horizon tabletop manipulation tasks in **ManiSkill3** to evaluate policies.
- Built automated trajectory-generation pipeline using **MPLib** (CPU) and **cuRobo** (GPU, collision-aware) for data synthesis.
- Integrated **PDDL** symbolic planning, enabling hybrid policy inputs (high-level, low-level, or hierarchical) in Gym environment.
- Benchmarked both for VLA (finetuned **RDT**, **ACT** and **DP**) and TAMP planner (**PDDLstream** and **VLM-TAMP**)

Mmint Lab (Supervised by Nima Fazeli, Assistant Professor at University of Michigan) **Ann Arbor, MI**
Research Assistant *September 2024 – Current*
- Developed a safe diffusion policy framework for robot arm manipulation to handle out-of-distribution issues.
- Utilized rollouts from a well-trained **3D Diffusion policy** to train a **Continuous Normalizing Flow** (CNF) model that quantifies deviations from the expected distribution.
- Designed a classifier to identify the robot's state (e.g., grasping, motion planning) and trigger the appropriate recovery policy like employing local mapping and sampling methods for motion planning during DP inferencing time.
- Benchmarked the framework using **Libero, RLbench** and **IsaacLab** to validate system performance.

TEACHING AND ACADEMIC SERVICE

EECS367 Introduction to Autonomous Robotics **Ann Arbor, MI**
Instructor Assistant/Graduate Student Instructor *January 2024 – Current*
Fortieth AAAI Conference on Artificial Intelligence (AAAI-26) **Remote**
Workflow Chair *March 2025 – Current*

SKILLS AND INTERESTS

- **Skills: Python**, **C++**, **Pytorch, ROS2**, C, SQL, Mandarin (Native), Microsoft (Word/Excel/Access/PowerPoint)