HAORAN ZHANG

Ph.D. Student in Robotics | Humanoid Whole-Body Control | Robot Learning
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EDUCATION

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI) — Abu Dhabi, UAE
Ph.D. in Robotics | *Advisor: Prof. Eric Xing* — *2026 – Present*

University of Michigan — Ann Arbor, MI
M.S. in Computer Science | GPA: **4.0/4.0** | Advisors: Prof. Chad Jenkins and Prof. Nima Fazeli — *May 2026*
B.S. in Computer Science; Second Major in Data Science | Major GPA: 3.75/4.0 — *May 2024*

INDUSTRY EXPERIENCE

Unitree Robotics
Humanoid Robotics Intern — *Jun 2026 – Aug 2026*

- Developed a **whole-body control teleoperation system** and cross-robot data-collection pipeline for humanoid demonstrations.
- Adapted the system across multiple humanoid platforms, including **Unitree G1, H2, and R1**, with robot-specific calibration and standardized trajectory logging.
- Designed **loco-manipulation benchmarks** with scene domain randomization and evaluation protocols that test both locomotion and manipulation capabilities.

RESEARCH EXPERIENCE

Robotics Cognition and Learning (RCL) Lab, MBZUAI — Abu Dhabi, UAE
Ph.D. Rotation | *Supervisor: Prof. Xingxing Zuo* — *2026*

- Developed **DexDuet**, which learns coordinated **bimanual dexterity from human demonstrations** while preserving hand-object contacts.
- Proposed **assisted reference-state initialization (A-RSI)**, a curriculum that adapts object assistance to each demonstration segment, making complex demonstrations learnable and improving performance and training efficiency where a uniform schedule stalls.
- Proposed **Contact-AUC**, a metric that measures whether each robot hand preserves the human's contacts, which object-tracking metrics cannot capture; evaluated DexDuet across benchmarks and robot embodiments.
- Applied DexDuet to the **NVIDIA Video to Data (V2D) Challenge**, winning **2nd place** and the **Industry Innovation Award** in Track 2 (Robotic Grounding).

ProgressLab, University of Michigan — Ann Arbor, MI
Research Assistant | *Supervisor: Prof. Chad Jenkins* — *Feb 2024 – May 2026*

- Collected real-world kitchen manipulation demonstrations via teleoperation using **LeRobot**, Koch arms, and ReactorX-200 arms with ALOHA2-style grippers.
- Built a **Genesis/3D Gaussian Splatting** pre-execution workflow to preview VLA policy rollouts and flag unsafe behavior before real-world deployment.

CLeARLab, National University of Singapore — Singapore
Research Assistant | *Supervisor: Prof. Harold Soh* — *Jun 2025 – Dec 2025*

- Designed and implemented **22 long-horizon tabletop manipulation tasks** in ManiSkill3 for policy evaluation.
- Built an automated trajectory-generation pipeline using **MPLib** (CPU) and collision-aware **cuRobo** (GPU) for synthetic data generation.
- Integrated **PDDL symbolic planning** into a Gym environment to support high-level, low-level, and hierarchical policy inputs.
- Benchmarked fine-tuned VLA policies (RDT, ACT, Diffusion Policy) and TAMP planners (PDDLStream, VLM-TAMP).

SELECTED PUBLICATIONS

** Equal contribution*

[1] **DexDuet: Learning Contact-Preserving Bimanual Dexterity from Human Demonstrations**
H. Zhang, H. Ding, H. Zhou, Z. Lu, H. Zhang, and X. Zuo. *Under review.* Paper and code coming soon.

[2] **Foresight: Failure Detection for Long-Horizon Robotic Manipulation with Action-Conditioned World Model Latents**
H. Zhang*, Y. Lu*, B. Wang, X. Kang, Y.-L. Kuo, Z. Cheng, M. Wang, and O. C. Jenkins. *Under review.* [Paper]

[3] **LoHR-Bench: A Dual-Level Benchmark for Extended Long-Horizon Robot Manipulation**
H. Zhang*, Z. Xue*, J. Qiu, T. Hu, M. Zhou, P. Jiang, C. Hao, and H. Soh. *Under review.*

[4] **RoboMME: Benchmarking and Understanding Memory for Robotic Generalist Policies**
Y. Dai, H. Fu, J. Lee, Y. Liu, **H. Zhang**, J. Yang, C. Finn, N. Fazeli, and J. Chai. *ICML 2026* (**Oral, top 0.7%**). [Project]

[5] **RoboVIP: Multi-View Video Generation with Visual Identity Prompting Augments Robot Manipulation**
B. Wang*, **H. Zhang***, S. Zhang*, J. Hao, M. Jia, Q. Lv, Y. Mao, Z. Lyu, J. Zeng, X. Xu, and J. Pang. *arXiv preprint, 2026.* [Project]

[6] **SO(2)-Equivariant Single-View 3D Reconstruction via Gaussian Sculpting Networks**
R. Xu, A. Opipari, J. Mah, S. R. Lewis, **H. Zhang**, H. Guo, and O. C. Jenkins. *GAS Workshop at RSS 2024.* [Paper]

[7] **IaC-Eval: A Code Generation Benchmark for Cloud Infrastructure-as-Code Programs**
P. T. J. Kon, J. Liu, Y. Qiu, W. Fan, T. He, L. Lin, **H. Zhang**, O. M. Park, G. S. Elengikal, Y. Kang, A. Chen, M. Chowdhury, M. Lee, and X. Wang. *NeurIPS 2024, Datasets and Benchmarks Track.* [Paper]

HONORS AND AWARDS

2nd Place, Track 2 (Robotic Grounding), NVIDIA Video to Data (V2D) Challenge at CoRL 2026. [Leaderboard] — *Nov 2026*
Industry Innovation Award, Track 2 (Robotic Grounding), NVIDIA Video to Data (V2D) Challenge at CoRL 2026. — *Nov 2026*

TEACHING AND ACADEMIC SERVICE

EECS 367: Introduction to Autonomous Robotics, University of Michigan — Ann Arbor, MI
Instructional Assistant / Graduate Student Instructor — *Jan 2024 – May 2025*

Fortieth AAAI Conference on Artificial Intelligence (AAAI-26) — Remote
Workflow Chair — *Mar 2025 – 2026*

IEEE International Conference on Robotics and Automation (ICRA 2027), *Reviewer* — *2026*

TECHNICAL SKILLS

Programming	Python, C++, C, SQL
Robotics & ML	PyTorch, ROS 2, LeRobot, ManiSkill3, Genesis, Isaac Lab, cuRobo, MPLib, PDDL
Research Areas	Humanoid whole-body control, dexterous manipulation, loco-manipulation, robot learning, embodied AI
Languages	Mandarin (native), English (proficient)