

Yuxuan Zhang

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Homepage
GitHub
LinkedIn

Skills

AI/ML	LLMs, VLM/VLA, agents, RAG, multimodal learning, model evaluation, AI safety/security
Robotics	LeRobot, ROS/ROS2, SLAM, navigation, manipulation, policy learning, simulation (Isaac Sim, Genesis, MuJoCo)
Systems	PyTorch, TensorFlow, CUDA/ROCm, Linux, Docker, profiling, edge AI deployment
Hardware/Test	FPGA, Verilog, Xilinx Vivado, embedded systems, control systems, test automation, Altium Designer, LabVIEW
Programming	Python, C/C++, Bash, SQL, MATLAB, JavaScript/TypeScript, Java, C#
Languages	English (fluent, IELTS 7.0), Chinese (native)

Education

Master in Artificial Intelligence Systems <i>National University of Singapore</i> <ul style="list-style-type: none">GPA: <i>TBD</i>Coursework: Robotics, NLP, Pattern Recognition, ML	<i>Aug 2025 – Present</i> Singapore
Graduate Diploma in System Analysis <i>National University of Singapore</i> <ul style="list-style-type: none">GPA: <i>4.11/5.00</i>Coursework: ML, Full-stack Development, System Design	<i>Jul 2023 – Jan 2025</i> Singapore
Bachelor in Intelligent Test & Control Engineering <i>Harbin Institute of Technology</i> <ul style="list-style-type: none">GPA: <i>4.02/5.00</i>Coursework: AI, Pattern Recognition & ML, Measurement & Control Systems, Embedded Systems, Distributed Systems, DSP	<i>Sep 2020 – Jun 2024</i> China

Publications

- Chongkai Gao, Jieao Shi, Mu Zhaoyu, Yudi Lin, Xuanwei Liu, Baiye Cheng, Wei Ken Ng, Anqi Chen, Kerun Liu, Xuchuan Huang, Zhuoran Li, Haoyang Li, Shengjia Zhu, **Yuxuan Zhang**, Nga Teng Chan, Xingyu Chen, Lin Shao. “ManiLadder: Benchmarking Manipulation Intelligence Frontier via a Categorized and Multi-Level Task Ladder.” *CoRL 2026, Submitted*.
 - A large-scale simulation benchmark with 112 tasks across four difficulty levels, spanning rigid, articulated, and deformable objects and multiple robot embodiments.
- Chongkai Gao, Zixuan Liu, Zhenghao Chi, Junshan Huang, Xin Fei, Yiwen Hou, **Yuxuan Zhang**, Yudi Lin, Zhirui Fang, Zeyu Jiang, Lin Shao. “VLA-OS: Structuring and Dissecting Planning Representations and Paradigms in Vision-Language-Action Models.” *NeurIPS 2025. arXiv*.
 - A unified VLA architecture series for controlled comparisons of task-planning paradigms and representations in robot manipulation.
 - Conducted controlled experiments across six manipulation benchmarks to analyze how planning representations affect performance across diverse settings.

Preprints

- Yuxuan Zhang**, Yuchen Sun, Keyi Jin, Hung-Chi Ko, Xavier Xie. “CCTA: Safety- and Capability-Constrained Tool Arbitration for Long-Horizon Embodied Decision Making.” *Target: IEEE*.
 - A closed-loop tool-arbitration framework that combines capability filtering, VLM-conditioned tool scoring, and always-on safety projection.

2. Haziq Razali, **Yuxuan Zhang**, Qianli Xu, Yiannis Demiris. “Learning to Synthesize Novel Human-Object Interaction in Collaborative Task-Based Settings.” *AAAI 2026*.
- A multi-view RGB-D framework for collaborative capture, reconstruction, and LLM-aided synthesis.

Selected Experience

Research Intern

Mar 2026 – Aug 2026

RAD @ AMD

Singapore

- Built an end-to-end LeRobot pipeline for streamlined data collection, policy fine-tuning, and robot inference deployment.
- Profiled VLA models on AMD Strix Halo with Radeon 8050S via ROCm, analyzing inference latency, runtime stability, and deployment bottlenecks.
- Contributed ROCm support for LeRobot and OpenPI integrations in [AMDResearch/Ryzers](#), and developed internal Ryzers-tests workflows for reproducible VLA profiling on ROCm.

AI Engineer Intern

Oct 2025 – Dec 2025

Fatfish AI

Singapore

- Integrated an NVIDIA Jetson-based inference system and MiniPC-based control stack for a humanoid robot with dexterous hands.
- Enabled LLM-based HRI, RGB-D + IMU perception, and closed-loop control for environment interaction and daily assistance.

Research Intern

Jun 2025 – Sep 2025

AdaComp Lab @ NUS

Singapore

- Developed LiDAR-based SLAM and route planning for autonomous quadruped navigation in dynamic environments.
- Implemented RGB-based object tracking to help visually impaired users interact with their surroundings.

Research Intern

May 2025 – May 2026

LinS Lab @ NUS

Singapore

- Studied VLA planning paradigms and manipulation benchmarking through VLA-OS and ManiLadder.

Research Intern

Mar 2025 – Dec 2025

*I2R @ A*STAR*

Singapore

- Developed multi-view RGB-D capture and reasoning pipelines for collaborative human-object interaction synthesis.

R&D Intern

Jul 2021 – Aug 2021

Changjiang Intelligent Control Co., Ltd.

China

- Developed multi-view stereo reconstruction, point-cloud processing, and robot-arm path planning for automated rust removal.

Tech Art Intern

Jan 2021 – Feb 2021

Boke City Co., Ltd. (Wuhan)

China

- Designed Unity-based VFX systems and implemented interactive logic in C#.

Selected Projects

Automated Calibration System for A/D Modules

Oct 2023 – May 2024

Undergraduate Thesis, Harbin Institute of Technology

China

- Built a 16-channel PCB with RS-232 firmware and integrated PXIe instrumentation with LabVIEW for automated calibration.

Automated Drone Docking & Charging Platform

Oct 2021 – Sep 2022

Innovation Project, Harbin Institute of Technology

China

- Developed an autonomous drone docking system using GPS + AprilTag hybrid localization with closed-loop landing control.

3D Port Reconstruction

Oct 2020 – Sep 2021

Project, Harbin Institute of Technology

China

- Reconstructed large-scale 3D port environments in Unity with VR interaction and dynamic simulation.