Jiacheng Zhang

Tel: +86 18868581191 **Email:** jiachengzhang_nus@163.com Academic Profile

Research Interests: Vision–Language–Action Models; Latent World Models; Robot Learning; Reinforcement Learning

EDUCATION

National University of Singapore Aug 2025 – Jul 2027 (Expected)
M.Sc. in Robotics **GPA: 4.44/ 5.0**

University of Liverpool Sep 2023 – Jun 2025
B.Sc. (Hons) in Computer Science (AI) **GPA: 3.86 / 4.0**, First Class Honours, Dean's List, Ranked 3rd

PUBLICATIONS & MANUSCRIPTS

1. **Jiacheng Zhang** et al. "**ObjectBinder–VLA**: Permutation–Consistent Multi–View Grounding and Intent–Conditioned Dynamics." ***ICLR 2027.*** **Submitted.**
2. Runze Wang, Zongsheng Li, Boyong He, **Jiacheng Zhang**, et al. "**IA–World**: Residual VLA Post–Training with Latent World Model." ***ICLR 2027.*** **Submitted.**
3. Zongsheng Li, Boyong He, **Jiacheng Zhang**, et al. "**PSI–WAM**: Persistent Stage–Aware Intent from World Action Models for Robot Manipulation." ***AAAI 2027.*** **Under Review.**
4. **Jiacheng Zhang** et al. "**The RoboAtlas**: Mapping the Global Robotics Landscape." ***ICRA 2026 Late Breaking Results.*** **Accepted.**
5. Lu Junkai, Zhao Jiadong, **Jiacheng Zhang**, et al. "**SMaRT–Tug**: Structured Multi–Agent Reinforcement Learning for Physics–Based Tugboat–Barge Collaborative Manipulation." ***DAI 2026 Research Track.*** **Submitted.**

RESEARCH EXPERIENCE

JD.com — Embodied Technology Department, JD Logistics
Research Intern, Embodied Algorithm Engineer Jun 2026 – Present

- Led **ObjectBinder–VLA (first author; ICLR 2027 submission)** on Qwen3–VL–2B + GROOT DiT–B; designed a permutation–consistent **multi–view Object Binder and intent–conditioned Object Dynamics Model** with SAM3.1 pseudo–mask supervision, Hungarian matching, explicit visibility / NO_OBJECT, and detached future tokens.
- Achieved **98.10% on Original LIBERO** (+0.3 percentage points over OA–WAM), **76.37% Axis Mean on LIBERO–Plus** (+2.05 points over Faster–WAM), and **81.2% on RoboTwin 2.0** (+27.1 points over Video2Act).
- Co–authored **IA–World (ICLR 2027 submission)**, coupling frozen π0.5 / Isaac GROOT policies with an **IA–Token–conditioned latent world model, residual actor, and foresight scorer** for dense online–RL feedback; success improved from **42% to 62% on ManiSkill and from 72% to 94% on LIBERO**.
- Contributed to **PSI–WAM model design and LIBERO / LIBERO–Plus inference evaluation (third author; AAAI 2027 under review)** on a Qwen3.5–2B + DiT–B VLA; added persistent stage intent, V–JEPA 2 latent dynamics, and a rollout–conditioned stopping head; achieved **98.1% on LIBERO, 80.2% under seven perturbations, and 83.2% on RoboTwin 2.0**.

MARMot Lab, National University of Singapore
Research Assistant, MSc Research Project (Grade: A+) Aug 2025 – Jul 2026
Supervisor: Guillaume Adrien Sartoretti, NUS ME Assistant Professor; EPFL PhD, CMU postdoc, multi–agent robotics
Research Area: Multi–Agent Robot Learning and Latent World–Model Control

- Completed an **A+–graded MSc project** on two–tugboat barge control in Isaac Sim, benchmarking PPO, MAPPO, TD–MPC2, and MA–TD–MPC; adapted TD–MPC2 with a **centralized latent world model**, joint reward / value prediction, and latent–space CEM planning.
- Developed **Role–Aware Global–Consensus MA–TD–MPC** using role–conditioned representations, cross–agent attention, teammate reconstruction, VICReg anti–collapse regularization, and residual consensus modulation.

- Achieved **13.0% higher final evaluation return than MA-TD-MPC** and successful representative execution of left-turn, straight-line, and right-turn commands.

Singapore-MIT Alliance for Research and Technology (SMART)

Visiting Researcher — Sep 2025 – Present

Supervisor: Thomas W. Malone, Ph.D., Patrick J. McGovern Professor of Management, MIT

Project: RoboAtlas – LLM-Powered Global Robotics Landscape Mapping System

- Designed an **LLM-agent-based automated pipeline** for large-scale robotics landscape mapping, covering multi-source data aggregation, structured information extraction, automated verification, and human-review routing.
- Developed and optimized **GPT-based extraction and verification modules** for heterogeneous robotics company data, with systematic evaluation across real-world companies and technology cases.
- Led the resulting research as **first author** of *The RoboAtlas: Mapping the Global Robotics Landscape*, accepted as an **ICRA 2026 Late Breaking Result**.

School of Advanced Technology, Xi'an Jiaotong-Liverpool University

Research Assistant — Jun 2023 – Sep 2023

Supervisor: Dongyao Jia, Senior Associate Professor, Department of Communications and Networking, XJTLU

- Developed a Python-based **multi-driver digital-twin simulation platform** integrating Webots and SUMO, with virtual controllers for human driving behaviors and real-time multi-vehicle interaction.
- Contributed to a **hybrid physical-virtual V2X evaluation system** for conventional and autonomous vehicles, analyzing vehicle speed, inter-vehicle distance, and platoon stability.
- **Co-first authored** a manuscript based on this work, submitted to ***Simulation Modelling Practice and Theory***.

SELECTED INDUSTRY EXPERIENCE

Baidu Online Network Technology (Beijing) Co., Ltd.

iOS Software Development Engineer, Mobile Baidu Recommendation R&D Team — Jun 2025 – Aug 2025

- Optimized video playback control using **device-performance scoring for adaptive video quality selection**.
- Implemented swipe-to-switch interaction and developed a **vertical short-video streaming prototype**.
- Conducted competitive analysis and **UI/network debugging** for mobile video recommendation and playback workflows.

PATENTS

A Method for Enhancing the Robustness of Goal-Oriented Reinforcement Learning Agents in Adversarial Environments

Publication Number: CN120197648A, Co-Inventor

- Proposed episodic-memory augmentation with PGD adversarial training for robust goal-oriented RL.

TECHNICAL SKILLS

Programming & Machine Learning: Python, C++, C, MATLAB; PyTorch, Transformers, Hugging Face; UMAP, t-SNE

Robotics & Simulation: LIBERO / LIBERO-Plus, ManiSkill, RoboTwin 2.0, Isaac Sim / Isaac Lab, MuJoCo, Webots, SUMO

Languages: English – Professional working proficiency **(IELTS 7.5 overall)**, Native Chinese