

# Liu Cheng

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## Education

### The Hong Kong University of Science and Technology (GZ)

*M.Phil. in Robotics and Autonomous Systems*

Guangzhou, China

Sep. 2024 – Oct. 2026

- Current GPA: 3.3/4.0

### Nanjing University of Posts and Telecommunications

*B.Eng. in Electromagnetic Fields and Wireless Technology*

Nanjing, China

Sep. 2020 – Jun. 2024

- Awarded **Honor Degree** (Top 5% General Scholarship), specialized in wireless systems and robotics.

## Experience

### Text2HumanoidAction

Mar. 2026 – Present

*MPhil Thesis Project (on going)*

HKUST-GZ

- Spearheaded a novel framework leveraging implicit physical priors (e.g., gravity, inertia) from the DiT hidden layers of a large-scale video generation model (Wan2.1) to guide humanoid motion generation.
- Designed and trained a cross-modal Adapter and a Diffusion-based backbone to align 1536D visual features temporally and dimensionally into 38D continuous whole-body motion representations for the Humanoid (Unitree G1).

### Robocup 3D Simulation Competition

Mar. 2026 – Present

*Team Member*

HKUST-GZ

- Implemented a multi-stage curriculum learning framework (HiFAR) using Deep Reinforcement Learning (PPO) to train a robust and high-dynamics fall recovery policy for bipedal robots.
- Integrated Key State Initialization (KSI) and comprehensive domain randomization to ensure rapid, autonomous recovery from diverse fall scenarios (prone, supine) against varied friction and mass perturbations.

### ATEC2025 Real-World Extreme Challenge

Sep. 2025 – Dec. 2025

*Team Leader | Core Developer*

CUHK & Alibab

- Led team to **8th Place** in a national challenge on legged locomotion and precision manipulation.
- Developed a **teleoperation pipeline** for robotic arms Data collection and trained walking strategies for bimanual robots using RL. ([GitHub Link](#))

### IROS 2025 Robot Dance Competition

Jun. 2025 – Oct. 2025

*Project Leader*

Guangdong, China

- Developed a **Video-to-Dance pipeline** for Unitree G1 humanoid robot via motion retargeting and Whole-Body Control (WBC); won **3rd Place**. ([GitHub Link](#))

### THU AIR Embodied AI Winter Camp

Jan. 2025 – Feb. 2025

*Outstanding Camper (Top Tier)*

Tsinghua University AIR, Beijing

- Built a simulation data collection pipeline and deployed **ACT (Action Chunking with Transformers)** model for imitation learning on robotic arm manipulation tasks.

### Future dynamics (Startup) — Co-Founder

Mar. 2024 – Present

*Technical Lead*

HKUST(GZ), Guangdong

- Lead technical strategy and executive management for the startup's robotics hardware-software integration projects.

### Xbotpark Entrepreneurial Camp

Jul. 2022 – Aug. 2022

*Team Leader*

Changzhou, Jiangsu

- Developed a medical IoT demo using STM32, RFID, and WiFi modules to optimize patient hospital workflows; awarded **Best Project**.

### DJI Robomaster | Teaching Assistant

Feb. 2022

*Internship*

DJI, Shenzhen

- Managed and maintained lab equipment and campus computing infrastructure for the Robomaster summer camp.

### Robocup 3D Simulation Competition

Nov. 2020 – Nov. 2022

*Team Leader | Algorithm Developer*

NJUPT

- Implemented bipedal robot role assignment and collaboration using **Hungarian/KM algorithms**.
- Optimized bipedal walking actions via **CMA-ES** based on a linear inverted pendulum model (LIPM).

Publications

Towards Exploratory and Focused Manipulation with Bimanual Active Perception: A New Problem, Benchmark and Strategy

Feb. 2026

• Yuxin He, Ruihao Zhang, Tianao Shen, **Cheng Liu**, Qiang Nie. *IEEE International Conference on Robotics and Automation (ICRA), 2026*. [Accepted]

Projects

|                                                                               |                     |
|-------------------------------------------------------------------------------|---------------------|
| Action generation for Humanoid Robots (Control,DRL)                           | Feb.2024 – Present  |
| Assisted Emotional Expression Badge (Electronic Design,System Design)         | Jul.2023            |
| Information Bracelet for the Medical Internet (Embedded Design,Communication) | Jul.2022 – Aug.2022 |
| Robocup 3D Simulation Competition (Planning, Decision, Optimization)          | May.2021 – Nov.2022 |
| Autonomous Tracking Car (Computer Vision, Embedded System)                    | Nov.2020 – Feb.2021 |
| Personal Drivable FTC/Robomaster Robot (Manufacture, mechanical design)       | Sep.2018 – Nov.2019 |

Technical Skills

**Languages:** Python, C/C++, ROS, Isaac Gym, Mujoco, PyTorch, Matlab  
**Algorithms:** K-means, CMA-ES, PID, Matching algorithm,DRL  
**Developer Tools:**Git, Docker, Linux (Ubuntu), LLM-assisted Development (Claude/Gemini)  
**Hardware:** CAD (Solidworks), Embedded System(stm32,C51,Arduino), Electronic design(PCB)

Honors

|                                                              |           |
|--------------------------------------------------------------|-----------|
| Robocup worldcup soccer 3D simulation Champion               | Jul. 2026 |
| HKUST(GZ) Campus Top 10 Singing Competition Champion         | Jun. 2026 |
| ATEC2025 · Real-World Extreme Challenge 8th Place            | Dec. 2025 |
| The 2025 IROS Mecha Challenge (Robot Dance) 3rd Place        | Oct. 2025 |
| Honor degree in EE, General Scholarship (Top 5%), NJUPT      | May. 2024 |
| BYD Campus New Voice Singing Competition Divisional Champion | Oct. 2023 |
| National Inspiration Scholarship                             | Sep. 2023 |
| HKUST(GZ) Red Bird Challenge Camp Winning Prize              | Jul. 2023 |
| Academic Merit Scholarship (First Prize)                     | Sep. 2022 |
| Xbotpark 2022 Innovation Summer Camp Best Project            | Aug. 2022 |
| 2022 RoboCup China Competition National Championship         | Jul. 2022 |
| 2021 Jiangsu Robot Competition Provincial First Prize        | Nov. 2021 |
| 2021 RoboCup WorldCup Third Prize                            | May. 2021 |
| 2019 DJI RoboMaster Robot Summer Camp Third Prize            | Jul. 2019 |



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