

Zhuoheng Wang

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Education

Tsinghua University

BS in Mechanics & Interdisciplinary Engineering

Aug 2022 – Present

- **GPA:** 3.9/4.0
- **Main Honors:** National Scholarship, Academic Excellence Scholarship, Taihu Scholarship for Future Technology, Science and Technology Innovation Excellence Scholarship
- **Selected Courses:** Control Engineering (A), Intelligent Robot (A-), Pattern Recognition and Machine Learning (A)

Georgia Institute of Technology

Visiting Student at George W. Woodruff School of Mechanical Engineering

Jun 2025 – Sep 2025

Research Interests

Legged Robotics, Robot Learning and Control, and Athletic Intelligence

Publications

* denotes equal contribution

- [1] Dribble Master: Learning Agile Humanoid Dribbling Through Legged Locomotion
Zhuoheng Wang*, Jinyin Zhou*, Qi Wu
ICRA 2026, submitted
- [2] SEEC: Stable End-Effector Control with Model-Enhanced Residual Learning for Humanoid Loco-Manipulation
Jaehwi Jang*, **Zhuoheng Wang***, Ziyi Zhou, Feiyang Wu, Ye Zhao
ICRA 2026, submitted

Research Experience

Stable Humanoid Loco-Manipulation with Model-Enhanced Reinforcement Learning

LIDAR Lab, Georgia Institute of Technology

Advisor: Prof. Ye Zhao

Jun 2025 – Sep 2025

- Create a basic upper-body RL training environment for end-effector tracking and stabilization
- Create locomotion RL training environment and train robust locomotion policies
- Develop RL-based sim-to-sim in MuJoCo and sim-to-real pipeline for T1 robot
- Develop MuJoCo-based end-effector stability evaluation environment

Learning Humanoid Ball Manipulation Through Legged Locomotion

Robot Control Lab, Tsinghua University

Advisor: Prof. Mingguo Zhao

Aug 2024 – Apr 2025

- Designed dribbling-related reward functions and utilized Isaac Gym simulator for training policies
- Transferred action policies trained in Isaac Gym to MuJoCo for sim-to-sim validation
- Debugged the Nokov motion capture device to obtain the robot's pose and the soccer ball's position in the real world
- Deployed trained policies on the Booster T1 humanoid robot for sim-to-real experiments

SkyRover: Air-Ground Robots for Low-Altitude Air Delivery Scenarios

DISCOVER Lab, Tsinghua University

Advisor: Prof. Guyue Zhou

Jan 2024 – Aug 2024

- Created the ROS Gazebo simulation of the SkyRover, a versatile robot with the ability to perform both rover and drone locomotion
- Demonstrated SkyRover's ability of sensing, navigation and control to complete simple delivery tasks and verify the feasibility of low-altitude air delivery
- Studied hybrid motion planning algorithms based on 2.5D risk maps

- Led the team as the captain to show exceptional performance and win the Urban Air Transportation Challenge Championship

Peter: A Fully Automatic Fruit and Vegetable Peeling Machine Based on Arduino and Traditional Control Theory

DISCOVER Lab, Tsinghua University

Advisor: Prof. Guyue Zhou
Apr 2023 – Sep 2023

- Invented the mechanical structure of the self-cleaning module and the material transferring part in the peeling machine with SolidWorks
- Successfully built the prototype via 3D printing
- Our project was successfully accepted as a cultivation project of Tsinghua X-Lab

Internship

Booster Robotics

- Established communication between the motion capture system around a soccer field and the humanoid robot, enabling the robot to perceive the position and orientation of any rigid body in the soccer field

Motion Control Engineer
Nov 2024 – Present

Department of Mechanical Engineering, Tsinghua University

- Solved students' problems, corrected assignments, and organized penalty shootout & 1v1 competition in the course Humanoid Soccer Robot
- Our course has been selected as a model project of Tsinghua University for the combination of competition and teaching

Teaching Assistant
Aug 2024 – Jan 2025

Honors and Rewards

Excellent Poster in Tsinghua University's Undergraduate Academic Advancement Program, Tsinghua University

Dec 2024

National Scholarship, Tsinghua University (5/147)

Oct 2024

Academic Excellence Scholarship, Tsinghua University

Oct 2024

Top Eight in RoboCup 2024 Humanoid League KidSize Soccer Competition, Eindhoven, Netherlands (Team Leader)

Jul 2024

1st Place in RoboCup China 2024 Humanoid League KidSize Soccer Competition, Fujian, China (Team Leader)

May 2024

4th Place in RoboCup Asia-Pacific 2023 Humanoid League KidSize Soccer Competition, Pyeongchang, South Korea

Dec 2023

Taihu Scholarship for Future Technology, Tsinghua University

Dec 2023

Science and Technology Innovation Excellence Scholarship, Tsinghua University

Dec 2023

1st Prize in the 39th National Undergraduate Physics Competition, Beijing, China

Dec 2023

2nd Place in RoboCup China 2023 Humanoid League KidSize Soccer Competition, Fujian, China

Oct 2023

Activities

Tsinghua University TH-MOS Robot Soccer Team, Team Leader

Jan 2024 – Dec 2024

- Led the team to win the first championship in team history and become a world-class contender
- Designed the goalkeeper's saving skill and created its decision-making framework to enhance the team's defensive ability
- Corrected the striker's shooting direction based on global localization, significantly increasing the team's number of goals

Tsinghua University TH-MOS Robot Soccer Team, Team Member

Oct 2023 – Jan 2024

- Optimized gait parameters to improve the robot's walking stability
- Optimized the parameters of the robot's kicking action to improve shooting skills

Professional Skills

Robotics: Isaac Lab, Isaac Sim, Isaac Gym, MuJoCo, Webots, ROS

Hardware: Booster T1 humanoid Robot, Motion Capture, VR headset

3D Modeling: SolidWorks, AutoCAD

Programming: Python, PyTorch, C/C++, Matlab & Simulink