Haodong Zhu

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EDUCATION

Tsinghua University

B.E. in Automation (in progress)   *Sept. 2023 - Present*

- **GPA**: 3.9/4.0
- **Relevant Courses:** Calculus (A), Linear Algebra (A), Random Mathematics and Statistics(A), Operations Research (A), Discrete Mathematics (A+),
  Signals and System Analysis (A), Theory of Automatic Control (A-),
  Introduction to AI Industry (A), Pattern Recognition and Machine Learning (A),
  Principles of Electric Circuits (A-), Data Structure (A+), Fundamentals of Analog Electronics (A-),

Tsinghua University

IIIS, Research Intern (Advisor: Prof. Yang Gao)   Apr. 2025 - Present

- My research interests lie at the **Humanoid Loco-Manipulation**, where I am driven to explore how intelligent systems perceive, learn, and interact with the world.

PUBLICATIONS AND PREPRINTS

[1] Humanoid Manipulation Interface: Humanoid Whole-Body Manipulation from Robot-Free Demonstrations   *In submission 2026*

In submission [Paper] [Project] [X Summary]

Ruiqian Nai*, Boyuan Zheng*, Junming Zhao*, **Haodong Zhu**, Sicong Dai, Zunhao Chen, Yihang Hu, Yingdong Hu, Tong Zhang, Chuan Wen and Yang Gao (*Equal contribution)

- Humanoid Manipulation Interface is a **robot-free framework** for learning diverse humanoid whole-body manipulation tasks across various environments

COURSE PROJECTS

<u>Microcontroller-based Robotic Car</u>

- Designed and implemented an intelligent robotic car system using **STM32F103/H743** microcontrollers with **OpenMV** vision module for autonomous navigation
- Developed **4 autonomous tasks**: line following with PID control, ultrasonic maze navigation, multi-mode vision control (HSV color detection, blob tracking), and AprilTag (TAG36H11) marker tracking
- Hands-on experience with **hardware integration**: photoelectric sensor arrays, HC-SR04 ultrasonic sensors, rotary encoders, OLED/LCD displays, and multi-protocol communication (UART, I2C, SPI)

AWARDS

First Prize in the 2022 National High School Mathematics Olympiad	*Autumn 2022*
First Prize in the Freshman Mathematical Foundations Competition(Non-Mathematics Group)	*Spring 2024*
Second Prize in the 3rd Robotic Dog Development Competition, Department of Automation	*Spring 2024*
Second Prize in the First Embodied Intelligence Challenge of Tsinghua University	*Spring 2025*

SKILLS AND INTERESTS

Programming	Python(PyTorch), C/C++, Isaac Gym/Lab, Mujoco
Hardware	Unitree G1, realsense, SV1-25, CTAG2F90-D