

# Zihan Wang



## Education

<b>The Chinese University of Hong Kong</b> <i>M.Sc. in Robotics</i>	Aug 2025 – Nov 2026
<b>Beihang University</b> <i>B.S. in Automation Engineering</i> <ul style="list-style-type: none"><li>GPA: 88/100 (3.7/4.0)</li></ul>	Sep 2021 – Jun 2025

## Publications

**PUB: A Plasma-Propelled Ultra-Quiet Blimp with Two-DOF Vector Thrusting**  
Yixing Zhang, **Zihan Wang**, Zhijun Li, Xuanlin Fan, Jiawei Zhang, Shaoping Wang  
arXiv, 2025

## Research Experience

<b>Tsinghua Laboratory of Brain and Intelligence, THU</b> Undergraduate Research Intern <ul style="list-style-type: none"><li>Topic: 2D&amp;3D SLAM algorithms for autonomous car</li></ul>	Mar 2025 – July 2025 Advisor: Jia Liu
<b>Wang Lab, BUAA</b> Undergraduate Research Intern <ul style="list-style-type: none"><li>Topic: Plasma-propelled 2-DOF blimp</li></ul>	Jul 2023 – June 2024 Advisor: Shaoping Wang
<b>Advanced Robotics Centre, NUS</b> Undergraduate Research Intern(Remote) <ul style="list-style-type: none"><li>Topic: 6-DOF grasp based on VLA model</li></ul>	Jul 2023 – Dec 2023 Advisor: Wenshuo Wang

## Industry Experience

<b>Beijing Kaiyun Technology Co., Beijing</b> <ul style="list-style-type: none"><li>Designed scripted test programs with LUA on the Semi-Physical Simulation Test Software ETEST</li><li>Accomplished semi-physical simulation on an embedded system lab box to design a smart clock with temperature and humidity sensing capabilities</li></ul>	Jul 2024 – Sep 2024
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## Projects

<b>Wheel-Legged Robot</b> <ul style="list-style-type: none"><li>Designed a control system based on the STM32H7 MCU, enabling basic robotic motions including forward/backward movement and in-place rotation.</li><li>Implemented cascaded PID control loops to enhance servo motor positioning accuracy to within <math>\pm 0.5^\circ</math>.</li><li>Developed an LQR-based state-feedback attitude controller that fuses IMU data for disturbance rejection and balance stability.</li><li>Tools: STM32, MIT-driven Brushless Servo Motors; SolidWorks, LQR&amp;PID Control</li></ul>	Demo
<b>Zhixing Autonomous Vehicle II</b> <ul style="list-style-type: none"><li>Deployed the Cartographer SLAM algorithm, achieving a map coverage rate exceeding 95%.</li><li>Designed the URDF model of the vehicle and conducted dynamic simulations in IsaacSim and Gazebo.</li><li>Generated real-time ESDF occupancy maps using Intel RealSense cameras and the NVBlox framework to facilitate real-time navigation.</li><li>Tools: NVIDIA Jetson, Intel RealSense; ROS 2 (IsaacROS), SolidWorks, IsaacSim</li></ul>	Code
<b>Zhixing Autonomous Vehicle I</b>	Demo

- Deployed the GMapping SLAM algorithm, accomplishing a map coverage rate greater than 87%.
- Implemented the Navigation stack for real-time path planning and dynamic obstacle avoidance, with an avoidance accuracy rate of 97%.
- Integrated the Baidu Speech Recognition SDK to enable voice-controlled navigation, achieving a recognition accuracy rate of >80%.
- Tools: Onboard LiDAR; ROS, OpenCV, Baidu Speech SDK

### Treasure-Hunting Vehicle

Demo

- Developed a control system based on Arduino and ESP32 for command transmission and remote teleoperation.
- Utilized the OpenCV library for binarization and perspective correction of randomly generated track images, simultaneously generating precise coordinate distributions of track obstacles to assist navigation algorithms.
- Integrated PID control with the Dijkstra algorithm to achieve high-precision path tracking and dynamic obstacle avoidance. Attained sub-centimeter positional accuracy (<0.5 cm) and rapid attitude control response with minimal overshoot (<1%), ensuring stable, smooth, and accurate traversal along the planned path.
- Tools: Arduino, ESP32; OpenCV, Dijkstra Algorithm

### Skills

**Programing:** C/C++ , Python, Pytorch, MATLAB

**Robotics Software:** ROS/ROS2, OpenCV, PCL, IsaacSim, Gazebo, Mujoco

**Robotics Hardware:** Solidworks, Fusion360; Multisim; STM32, ESP32, Arduino, NVIDIA Jetson®; 3D Printing

**Language:** TOEFL:101 (R:26 L:25 W:27 S:23), ~~ETX~~

### Awards

The Undergraduate Training Program for Innovation and Entrepreneurship Funding (National level)	2024
Academic Excellence Award	2024
Academic Excellence Award	2023