

Zihan Wang



Education

The Chinese University of Hong Kong

Aug 2025 – Present

M.S. in Robotics

Beihang University

Sep 2021 – Jun 2025

B.E. in Automation

- GPA: 88.1/100 (3.7/4.0)

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

Tsinghua Laboratory of Brain and Intelligence, THU

Mar 2025 – July 2025

Undergraduate Research Intern

Adivisor: Jia Liu

- Topic: 2D&3D SLAM algorithms for autonomous car

Advanced Robotics Centre, NUS

Jul 2023 – Dec 2023

Undergraduate Research Intern(Remote)

Adivisor: Wenshuo Wang

- Topic: 6-DOF grasp based on VLA model

Industry Experience

Beijing Kaiyun Technology Co., Beijing

Jul 2024 – Sep 2024

- Designed scripted test programs with LUA on the Semi-Physical Simulation Test Software ETEST
- Accomplished semi-physical simulation on an embedded system lab box to design a smart clock with temperature and humidity sensing capabilities

Projects

Wheel-Legged Robot

Demo

- Designed a control system based on the STM32H7 MCU, enabling basic robotic motions including forward/backward movement and in-place rotation.
- Implemented cascaded PID control loops to enhance servo motor positioning accuracy to within $\pm 0.5^\circ$.
- Developed an LQR-based state-feedback attitude controller that fuses IMU data for disturbance rejection and balance stability.
- Tools: STM32, MIT-driven Brushless Servo Motors; SolidWorks, LQR&PID Control

Zhixing Autonomous Vehicle II

Code

- Deployed the Cartographer SLAM algorithm, achieving a map coverage rate exceeding 95%.
- Designed the URDF model of the vehicle and conducted dynamic simulations in IsaacSim and Gazebo.
- Generated real-time ESDF occupancy maps using Intel RealSense cameras and the NVBlox framework to facilitate real-time navigation.
- Tools: NVIDIA Jetson, Intel RealSense; ROS 2 (IsaacROS), SolidWorks, IsaacSim

Zhixing Autonomous Vehicle I

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), ~~TEX~~

Awards

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