Zihan Wang

✉ zihanw600@gmail.com | 🌐 Website | 💼 LinkedIn | GitHub

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

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

Plasma-propelled ultra-quiet flying robot system and power combination control method
China Invention Patent CN118220461A

Research Experience

Tsinghua Laboratory of Brain and Intelligence, THU	Mar 2025 – Jul 2025
Undergraduate Research Assistant	Advisor: Prof. Jia Liu

- Topic: 2D&3D SLAM algorithms for **Zhixing Autonomous Car II**

Wang Lab, BUAA	Sep 2023 – Jun 2024
Undergraduate Research Assistant	Advisor: Prof. Shaoping Wang

- Topic: Electrical and Control System Design for **Propelled Ultra-Quiet Blimp**

Advanced Robotics Centre, NUS	Jul 2023 – Dec 2023
Undergraduate Research Assistant (Remote)	Advisor: Dr. Wenshuo Wang

- Topic: 6-DOF grasp based on fundamental models

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 $\pm0.5°$.
- 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 Car 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 Car 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/Lab, Gazebo, Mujoco

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

Language: TOEFL:101 (R:26 L:25 W:27 S:23), LaTeX

Awards

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