Zihan Wang

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Education

The Chinese University of Hong Kong, M.Sc. in Robotics — Aug 2025 – Nov 2026

Beihang University, B.S. in Automation Engineering — Sep 2021 – Jun 2025

- GPA: 88/100 (3.7/4.0)

Publications

Patent

Plasma-propelled ultra-quiet flying robotic system and power combination control method *2024*

Yixing Zhang, ***Zihan Wang***, Jiawei Zhang, Xuanlin Fan, Zhijun Li, Shaoping Wang

Research Experience

Tsinghua Laboratory of Brain and Intelligence, Tsinghua University — Mar 2025 – Jun 2025

Research Intern — Adivisor: Jia Liu

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

Department of Mechanical Engineering, National University of Singarpore — Jul 2023 – Dec 2023

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 Code

- Designed a comprehensive embedded control architecture on STM32H7 MCU, leveraging its high computational capabilities for real-time motion control and attitude stabilization.
- Implemented cascaded PID control loops for precise servo motor position control, with carefully tuned parameters for optimal performance in different operating conditions.
- Developed an LQR-based state feedback controller for attitude stabilization, maintaining balance during locomotion by continuously adjusting leg positions based on IMU feedback.
- Tools Used: STM32, MIT-driven brushless servo motor; Solidworks, LQR&PID Control

VLA Navigation Car Code

- Implemented 2D SLAM with Cartographer, enabling high-accuracy localization and mapping for improved Nav2 autonomous navigation capabilities on NVIDIA Jetson®.
- Designed URDF models for mobile robots and conducted simulations in Isaac Sim and Gazebo for navigation, semantic segmentation, and other tasks to facilitate real-world deployment.
- Implemented real-time ESDF and other occupancy map generation using NVBlox with a RealSense camera, enabling robust robot navigation, collision avoidance, and detailed scene understanding for enhanced autonomy.
- Tools Used: NVIDIA Jetson®, Intel® Realsense™; ROS2(IsaacROS), Solidworks, IsaacSim

Treasure Hunting Car Code

- Created a car with Arduino main control board and ESP32 communication board.
- Achieved fast and automatic route design and navigation that avoids randomly positioned obstacles, using proportional-integral-derivative (PID) control and Dijkstra's algorithms.
- Utilized OpenCV libraries to binarize and rectify the competition field to generate color block coordinates for target tracking.
- Tools Used: Arduino, ESP32; OpenCV, A* Algorithm

Zhi Xing Mini Car Demo

- Designed and developed an autonomous navigation robot system based on ROS, supporting real-time LiDAR obstacle avoidance, SLAM mapping, and path planning.
- Deploying 2D SLAM algorithm for real-time debugging and visualization of map construction and path planning to ensure precision and reliability.
- Integrated Baidu Voice Recognition SDK to enable voice command features, enhancing human-robot interaction and control.
- Tools Used: Vehicle-mounted LiDAR; ROS, OpenCV, Baidu Voice Recognition SDK

Skills

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

Robotics Tools: ROS/ROS2, OpenCV, PCL, IsaacSim, Gazebo, Mujoco

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

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

Awards

National College Students Innovation and Entrepreneurship Training Program 2024

Academic Excellence Award 2024

Academic Excellence Award 2023