Jiaxin Yang

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Education

Zhejiang University, Hangzhou, China   *August 2022 – Present*
Bachelor of Engineering in Automation (Control Science and Engineering)   GPA: 3.67/4.00
Relevant coursework: Robot Modeling and Control, Principles of Automatic Control, Modern Control System, Embedded System, Signal Analysis and Processing

Projects and Experience

AGV Human-Machine Goods Transfer System   *April 2024 – May 2025*
Fablab, College of Control Science and Engineering, Zhejiang University
Team Leader, 3 members and a supervisor

- Spearheaded the design, development and implementation of a full-stack AGV goods transfer system from concept to functional prototype.

- Designed and assembled the AGV hardware platform (including motor drivers, Raspberry Pi, laser radar), and developed ROS-noetic-based software modules for SLAM (using hector-slam) and trajectory planning (using A*).

- Delivered a robust mobile robot prototype capable of real-time environment mapping and autonomous navigation, achieving a 'Good' evaluation in the final report.

Risk Analysis of Distributed Energy Integration into Distribution Networks   *In Progress*
Team Leader, 4 members

- Led the development of mathematical models (Monte Carlo simulation, AC power flow and Newton-Raphson) to quantify lostload and overload risks in a 62-node distribution network with distributed PV integration.

- Created photovoltaic generation curve models to accurately simulate PV output variability for risk assessment.

- Competing in Shenzhen Cup 2025 Mathematical Modeling Challenge (Problem C) and Zhejiang University Modeling Competition (Problem A).

Mobile Robot Simulation: Path Planning and Obstacle Avoidance   *February 2025 – March 2025*
Participant, 3 members

- Implemented a Dynamic Window Approach (DWA) algorithm in Python for real-time local obstacle avoidance.

- Integrated A* algorithm for global path planning, enabling simulated robot to navigate complex environments (11 static, 5 dynamic obstacles) with a 100% success rate across 200+ simulation trials and ranked 1st among 10+ teams.

- Explored an innovative "drift-style" maneuver to enhance algorithmic robustness, contributing to broader solution exploration.

Skills

- **Programming:** C (Experienced), Python, MATLAB, VHDL, Ladder Logic (LD)

- **Tools & Frameworks:** ROS (ROS1/ROS2, Experienced), OpenCV, RViz, SLAM (gmapping and hector-slam), Git, LaTeX

- **Hardware:** Arduino, Raspberry Pi, FPGA Board, STM32

- **Algorithms:** A*, DWA (Dynamic Window Approach), PRM (Probabilistic Roadmap), PID Control, Greedy Algorithm, Monte Carlo Simulation, Power Flow Analysis

- **Languages:** English (IELTS 7.0), Chinese (native), Mongolian (ethnic)

Awards

- **Second Prize (University level, 2024)**, "Zhongkong Cup" UAV Competition (Zhejiang Province)

- **Second Prize (University level, 2025) and Qualified for Provincial level**, 8th China University Robotics Innovation Competition

- **Third Prize (University level, 2025)**, Zhejiang University Math Modeling Competition (Problem A)

- **In Progress (2025)**, Shenzhen Cup Math Modeling Challenge (Problem C)

- **Outstanding Student Cadre (2024-2025)**, Zhejiang University

Extracurricular Activities

- **Class League Secretary**, Zhejiang University, 2024-Present

- **Participant**, Summer Exchange Program in NUS, NTU, SUTD and A*STAR, Singapore, 2024

- **Student Leader**, 5-Day visit for Shanghai Electric and ABB Robotics, Shanghai, 2024

- **Vice Captain**, Social Research Program in Beijing-Tianjin Region, 2023

- **Volunteer**, 3rd National Forum on Robotics Engineering Education, 2023

- **Member**, Smartlink AIoT Technology Student Club of Zhejiang University, partnered with Huawei Co., Ltd

- **Member**, ZJU Robotics Association

References

- Prof. Qinyuan Ren, College of Control Science and Engineering, Zhejiang University
Email: renqinyuan@zju.edu.cn
Role: Project supervisor and course instructor

- Dr. Dongxia Wang, Distinguished Researcher, College of Control Science and Engineering, ZJU
Email: dxwang@zju.edu.cn
Role: Class advisor