

# YIWEN YING

Date of Birth: 2004.06 | Personal Page: [wendy-ying.github.io](https://wendy-ying.github.io)  
Tel: 13816146518 | E-mail: [yingyw2022@mail.sustech.edu.cn](mailto:yingyw2022@mail.sustech.edu.cn)



## ACADEMIC EXPERIENCES

Southern University of Science and Technology

2022.08-2026.06

Information Engineering, Department of Electronic and Electrical Engineering

- **GPA:** 94.52/100 | 3.92/4.0 | 80% credits A/A+ **Rank:** 2/43 **English:** CET6 - 604 (2023.12)
- Calculus (96+94) Linear Algebra (95) Probability and Statistics (97) Digital System Design (97) Introduction to C Programming (98) Data Structures and Algorithm Analysis (95) AI and Machine Learning (98) Mobile Robot Navigation and Control (94) Robotic Motion and Control (93)

## RESEARCH EXPERIENCES

➤	FAST LAB	Coll. of CSE, ZJU	Supervisor: Prof. Fei Gao	2025.01-Present
➤	CV-AI LAB	Dept. of EE, THU	Supervisor: Prof. Liangrui Peng	2024.08-2024.11
➤	RCV LAB	Dept. of EE, SUSTech	Supervisor: Prof. Hong Zhang	2023.06-Present

### ● **MoMaIK: Diverse and Collision-Free Inverse Kinematics Solver for Mobile Manipulators, first author paper, proposed submitted to ICRA 2026**

**Introduction:** A framework for precise joint-space inverse kinematics solutions in a 10-DOF mobile manipulator, incorporating nonlinear constraints, achieving coverage of solution space.

**My Contribution:** Designed the diffusion framework, utilizing MLP and attention block, with consistency distillation and numerical iterative methods, to generate expected outcomes.

**Outcome:** Improved solution space coverage and obstacle avoidance ability, while maintaining accuracy and efficiency, surpassing traditional methods in high-DOF manipulator motion planning.

### ● **MfNeuPAN: Proactive End-to-End Navigation in Dynamic Environments via Direct Multi-Frame Point Constraints, first author paper, under review by ROBIO 2025**

**Introduction:** An efficient local planner based on point constraints for dynamic environments.

**My Contribution:** Utilized multi-frame observations with DBSCAN clustering and nearest neighbor methods for obstacle state estimation, and employed Gaussian Mixture Models to predict future trajectories. Incorporated it with point-constrained local planner, NeuPAN, to navigate the robot.

**Outcome:** Achieved shorter and more efficient paths, outperforming baseline methods.

### ● **Fully Automatic Task-Oriented Air-Ground Cooperative Robot System, selected as a National-Level Project by College Students' Innovative Entrepreneurial Training Plan Program**

**Introduction:** An autonomous task-oriented system integrating UAV and wheeled robots.

**My Contribution:** Led the usage of OpenCV, YOLO, OpenMV to build visual perception system. Developed the wheeled robot platform using UWB localization, A\* planning, STM32 micro-controller, and stepper motors. Implemented a ground station GUI and wireless communication system to ensure real-time information exchange and synchronized operations between aerial and ground platforms.

**Outcome:** Successfully demonstrated target recognition and synchronized air-ground operations.

- **SD-Loc: Global Localization in Challenging Semi-Dynamic Environment, third author paper, proposed submitted to ICRA 2026**

**Introduction:** A re-localization algorithm by loss-weight registration for SLAM in semi-dynamic environments such as warehouses and parking lots, resulting in improved accuracy.

**My Contribution:** Led the implementation of methods based on FAST-LIO and LIO-SAM to conduct simulation. Completed the physical experiment data collection and validation, the automated simulation environment generation and streamlined experimental workflows.

**Outcome:** Enhanced localization accuracy in challenging environments.

- **Universal Building Delivery Robot, selected as a School-Level Project by Guangdong Science and Technology Innovation Strategy Special Programs**

**Introduction:** A universal delivery robot capable of pressing the elevator button itself, instead of using a receiver in each elevator. The university-enterprise cooperation project with Meituan.

**My Contribution:** Utilize the OCR-RCNN based button recognition system to recognize the button.

**Outcome:** Achieved high-precision elevator interaction and navigation, with a pending patent.

- **Precise 3D Reconstruction System from High-Precision Object Images**

**Introduction:** A 3D reconstruction system for ultra-high-precision object.

**My Contribution:** Optimized the DUST3R by gradient descent methods, and integrated ROI-focused strategies, for improved reconstruction accuracy.

**Outcome:** Achieved superior 3D reconstruction precision and smoothness compared to traditional methods. With digital-born and scanned results to build 3D-OCR datasets.

## RESEARCH INTERESTS

---

My research interests focus on **learning-based robot motion planning**. Have comprehensive capabilities in full-stack robotics development with expertise in the field of motion planning, SLAM, machine learning, and computer vision. My programming expertise spans Python, C++, and MATLAB. Be familiar with deep learning (Diffusion) and embedded systems (STM32, Raspberry Pi).

## HONORS & AWARDS

---

- 2024, **Student Model of Excellence**, SUSTech (Top 7 among all undergraduates, 4000 $\pm$ )
- 2024, **Outstanding Student Scholarship Second Prize**, SUSTech (Top 15%)
- 2024, **Outstanding Project**, Dept. of EE., SUSTech (Top 5 out of 107, individual)
- 2023, **Outstanding Student**, SUSTech (Top 489 among all undergraduates, 3700 $\pm$ )
- 2023, **Outstanding Student Scholarship Second Prize**, SUSTech (Top 15%)
- 2023, **First Prize**, Guangdong Province, National University Mathematics Competition (Top 7%)
- 2024, **National Class 1 Athlete** (Mass Category), Women's 100m Breaststroke Swimming
- 2024, **National Class 1 Athlete** (Mass Category), Women's 50m Freestyle Swimming

## SOCIAL WORK

---

- President of the Student Union, Dept. of EE., SUSTech
- Peer Mentor of Undergraduate Course, Signal and System, Dept. of EE., SUSTech