Pengyuan Guo

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Education

Purdue University, West Lafayette, USA *Sept 2024 – Dec 2025*
MS in Robotics

- GPA: 3.87/4.0
- **Relevant Coursework:** Introduction to Robotic System, Robot Localization & Mapping, Industrial Robotics & Flexible Assembly, Reinforcement Learning, Lumped System Theory(Program Course List)

Purdue University, Indianapolis, USA *Sept 2015 – May 2018*
BS in Mechanical Engineering

- GPA: 3.27/4.0
- **Relevant Coursework:** Control System Analysis and Design, Electrical and Electron circuits, Model and Analysis of Dynamic System

Sun Yat-sen University, Guangzhou, China *Sept 2013 – May 2018*
BS in Theoretical and Applied Mechanics

- Collaborative 2+2 Program with Purdue University

Experience

AgenticLab: A Real-world Robot Agent Platform that Can See, Think, and Act *West Lafayette, IN*
May 2025 – Present
Project Lead
Supervisor: Yu She

- Architected a modular embodied agent framework that bridges perception (VLMs) and planning (PDDL) with physical action (AnyGrasp), achieving zero-shot manipulation without task-specific policy training.
- Addressed the reproducibility difficulties in embodied AI by developing an open-source, standardized hardware-software testbed, facilitating consistent benchmarking of VLM agents.
- Designed a multi-level evaluation suite to rigorously quantify "Embodied Generalization", moving beyond success rates to measure visual grounding accuracy, planning efficiency, and error recovery.

What Bimanuals Can Do Competition at ICRA 2025 *Atlanta, GA*
Team Leader *Jan 2025 – May 2025*
Supervisor:Yu She

- Proposed and led the accepted project "A Visuo-tactile Diffusion Policy Architecture for Multimodal Imitation Learning," among 88 global submissions, with only 15 teams selected as finalists.
- Achieved **Third Prize ($5,000 award)** in the Logistics Packing track.
- Engineered a full-stack imitation learning pipeline: from designing custom CAD end-effectors for modular integration to orchestrating large-scale data collection and validation on Gilbreth cluster.
- Developed a teleoperation interface for Meta Quest 3 → Galaxea A1 robotic arm (ROS 1), enabling teleoperation as a backup plan.
- Managed the project lifecycle from proposal to execution, coordinating multidisciplinary efforts and successfully securing travel grants for conference deployment.

U-eagleye Ltd. *Guangzhou, China*
Sales Engineer *Sept 2019 – June 2024*

- Acted as a technical coordinator among mechanical engineers, motion-control programmers, and international clients in the development of the F5 flexographic inline press.
- Participated in the design of F5 model (adopted Beckhoff motion control system) particularly for film printing which is dominant in China.
- Supported deployment and training for overseas plants; contributed to successful installation of 8 F5 units (5 Indonesia, 3 Turkey) with cumulative sales exceeding 7 million USD .

WestRock *Guangzhou, China*
Product Engineer for Gillette & Do Torra *Sept 2018 – June 2019*

- Collaborated with WestRock engineers and designers on sustainable packaging initiatives on 3 major luxury boxes for Gillette
- Coordinated testing and iteration cycles between client and manufacturing teams, involving structural modifications, redesigns, and various strength tests, most of which were accepted and implemented by Gillette.

Projects

Integrated Industrial & Vision-Guided Robotics *Project Site*
IE 574 – Industrial Robotics Course Project

- Programmed and integrated two collaborative manipulators and autonomous mobile robots (AMRs) to execute coordinated pick-and-place and material-handling tasks, forming a fully automated workflow.
- Developed a vision-guided manipulation pipeline in simulation (Isaac Sim / CoppeliaSim) and on real hardware, including object detection and localization, motion planning for grasping, and inverse kinematics–based target reaching with visual servoing for object tracking.
- Extended the system to a multimodal imitation learning framework for bimanual robotic manipulation, training policies in IsaacSim and deploying them on real robots to improve manipulation precision and generalization across diverse tasks and platforms.
- Tools Used: IssacSim, CoppeliaSim, TMflow, Fetchcore

Autonomous Navigation & Object Localization in ROS2 *Project Site*
Developed a full autonomous navigation and object-localization system for a Turtlebot3 in a customized Gazebo/ROS2 environment.

- Designed an FSM-based wall-following exploration module using LiDAR perception and PI heading control to autonomously map unknown indoor spaces.
- Implemented a two-level navigation stack combining A* global planning with RRT local replanning from real-time /scan data, supported by dual PID controllers for stable path tracking.
- Built a vision–LiDAR fusion pipeline for object localization: color-based contour detection, image-angle computation, LiDAR distance estimation, and world-coordinate triangulation with RViz visualization.
- Tools Used: Turtlebot3, Gazebo, ROS2, Python

Publications

AgenticLab: A Real-world Robot Agent Platform that Can See, Think, and Act Jan 2026

Pengyuan Guo, *Zhonghao Mai*, *Zhengtong Xu*, *Zichen Miao*, *Qiang Qiu*, *She Yu*

In Preparation, target venue: RSS 2026

Skills

- **Computer Languages** — Python | MATLAB | C++ & CMake
- **Robotics** — ROS 1&2 | Gazebo | Isaac Gym | PyTorch | TensorFlow | OpenCV
- **Mechanical Design & Simulation** — CAD: OnShape | SolidWorks | CATIA v4–5
Modelling: ANSYS | COMSOL Multiphysics
- **Language Proficiency** — Chinese (Native)
English (Advanced)
TOEFL: Total 102
GRE: Quantitative 170, Verbal 155