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(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

VLMrobobench: VLM Benchmarking Platform for Robot Manipulation *West Lafayette, IN*
Student Researcher *May 2025 – Present*
Supervisor: She Yu

- Developed an embodied agent architecture integrating LLM + PDDL planner + VLM + GraspNet + Execution module, enabling zero-shot manipulation through reasoning, tool use, and reflection—without policy training.
- Proposed an open-source, real-world testbed for VLMs and embodied agents, built from customized hardware and reproducible software.
- Designed benchmark tasks and metrics to assess spatial reasoning, grounding, and planning performance of VLM-based agents

WBCD Competition at ICRA 2025 *Atlanta, GA*
Team Leader *Jan 2025 – May 2025*
Supervisor:She Yu

- 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
- Coordinated overall team efforts, managed communication with competition organizers, and successfully applied for a travel grant to support team participation.
- Contributed to real-world bimanual manipulation dataset collection in Zarr format; validated data quality via Rerun visualization and trained diffusion policies on the Gilbreth cluster.
- Designed and prototyped custom mechanical connectors in CAD, facilitating modular integration of multiple robotic arms, cameras, and grippers of heterogeneous models.
- Developed a ROS 1 teleoperation interface for Meta Quest 3 → Galaxea A1 robotic arm, enabling teleoperation as a backup plan.

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

Autonomous System *github.com/name/repo*

- Developed an electronic classroom where multiple users can simultaneously view and draw on a "chalkboard" with each person's edits synchronized
- Tools Used: ROS2, Python

Design and Simulation of Magnetically and Thermally Actuated Microrobots for Precise Gripping Applications *Mobile Microrobotics* *Project Report*

- Designed a hybrid-actuated microrobot integrating magnetic locomotion and laser-induced thermal expansion for precise micro-gripping tasks in constrained environments.
- Conducted multi-physics analytical modeling and simulation combining optical heating, thermal dissipation, and mechanical expansion to predict actuator force output .
- Tools Used: SolidWorks, COMSOL Multiphysics

Publications

VLM roboBench: VLM Benchmarking Platform for Robot Manipulation Jan 2025

Pengyuan Guo, Zhonghao Mai, Zhengtong Xu

10.1109/TASC.2023.3340648

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