Mingyu Li | 李明宇 Tel: +86 15817679050
Email: 2352659@tongji.edu.cn
Personal web: https://mingyuli.com
Github: https://github.com/MingyuLi018

Education Background

Tongji University **Mechanical Engineering** GPA: 4.28/5 CET6: 510 Sep. 2023 - Present

Research Interests

Embodied Intelligence · Edge AI Deployment · Hardware-Software Co-Design · Robotic Grasping & Dexterous Manipulation · Vision-Language Models for Manipulation

Research Experience

CAD · Linux · ROS · Python · Embodied Vision

1. Panoptic-Grasp: Dual-Vision, Infinite-Roll Dexterous Hand for Edge-Native Zero-Shot Grasping

Project Leader | Vision4Robotics Lab Advised by Assoc. Prof. Changhong Fu | Sep. 2025 – Present

Mechanical: Designed a 6-DOF dexterous hand with a direct-drive slip-ring wrist enabling infinite continuous roll; full mechanical design in Autodesk Inventor with custom 12V power distribution.

Perception: Built a dorsal–ventral dual-camera relay for complementary front/rear perception; deployed reparameterized YOLO-World on RK3588 NPU for real-time language-guided zero-shot grasping (offline text-encoder reparameterization removes online inference overhead).

System: Integrated full perception-to-actuation loop on ROS 2 (Python & C++); validated on a physical platform, closing the Sim-to-Real gap.

Outcome: First-author & corresponding-author paper submitted to IEEE/ASME ICARM 2026.

2. Precise Grasping of Manipulator Under the Constraints of 2D Planar Camera and Embedded System

Team Member | Dec. 2024 - Mar. 2026

Project Introduction: This project optimized the manipulator grasping scheme under the constraints of 2D planar camera and low-computing-power embedded system.

Responsibilities: Conducted mechanical design of the manipulator, and deployed visual algorithms and grasping algorithms on the embedded platform.

3. Simulation and Optimization of Manual Work in Intelligent Manufacturing System Based on ema WD Software

Team Member | Apr. 2024 - Jun. 2025

Project Introduction: Established an assembly production line for gear boxes in the ema WD digital twin software, optimized workers' working environment according to ergonomics and conducted quantitative analysis in the software.

Responsibilities: Completed the modeling of gear boxes, learned knowledge related to ergonomics and mastered digital twin related software.

Awards & Achievements

Awards

- The 18th “CAD Cup" - Additive Manufacturing Track (Mechanical Engineering) | **National First Prize**
- 2025 "BQRI Cup" Logistics Technology Innovation Competition | **National Third Prize**
- The 20th National University Student Intelligent Vehicle Competition | **Provincial Second Prize**
- University-level Excellent Student, and 6 other provincial, municipal and university-level awards

Patents & Published Papers

- *Folding Crutch Chair* (Patent No.: 202521174680.9) | Utility Model Patent, First Author
- *Hardware-Software Co-Design of a Dual-Vision, Infinite-Roll Hand for Edge-Native Grasping* | IEEE/ASME ICARM 2026 First Author (under submission)

Research Skills

Modeling · Python(PyTorch, OpenCV, NumPy) · MATLAB · Linux

- **Robotics & Embedded:** ROS 2 (Python & C++), Embedded Linux (Ubuntu) deployment on RK3588 NPU , STM32, OpenMV
- **Modeling & Simulation:** Inventor (Proficient), SolidWorks, Fusion 360, Revit; Simulink & Simscape
- **AI / Vision Stack:** YOLO-World, CLIP-style models, zero-shot detection, model reparameterization & INT8 quantization for edge inference