Binghong Chen

Mechanical Engineering, College of Engineering
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Education

Carnegie Mellon University — Pittsburgh, PA, USA
Master of Mechanical Engineering - Research — *Aug. 2025 – Present*

- **Course Schedule:** Visual Learning and Recognition, Robot Behavior Learning, Modern Control Theory

Zhejiang University — Hangzhou, China
Bachelor of Engineering in Agricultural Engineering — *Sep. 2021 – Jul 2025*

- **GPA:** 3.83/4.0
- **Core Courses:** Calculus, Linear Algebra, Probability and Mathematical Statistics, Principle of Automatic Control, Base of Mechanical Design, Electrical and Electronic Engineering, Fundamentals of C Programming

Publications

*Equal Contribution

- Fanghao Wang *, **Binghong Chen***, Mingchuan Zhou,et al. "Dynamic Target Pursuit in Cluttered Environment for Magnetic Microrobot with Reinforcement Learning" in submission to IEEE Transactions on Robotics

Research Experience

Dessight Biomedical Company — May 2025 – Jul 2025
Research Intern — *HangZhou, China*

➢ ***Deformable Object Manipulation with Bimanual Wristed da Vinci Research Kit*** *(For ICRA 2026)*

- Collect data, train and deploy the ACT, Diffusion Policy for a series of manipulation task. Combine high-level policy and motion planner for fast and stable response.
- Build the RL environment for dVRK made by company in SOFA and Isaac Sim from scratch.
- Responsible for validating an IL pipeline for real robot and building simulation environment.

Robotic Micronano Manipulation Lab, Zhejiang University — March 2024 – April 2025
Research Assistant, Supervisor: Prof. Mingchuan Zhou — *HangZhou, China*

➢ ***Capturing Dynamic Target with a Magnetic Microgripper via RL*** *(TRO under review)*

- Design a magnetic microgripper capable of 2D planar movement, object capture and transportation. Propose a neural network framework with several attention layers to process visual images and virtual LiDAR data.
- It is trained by PPO and learns to navigate within a constrained environment with lots of dynamic obstacles and capture the dynamic target. We conduct experiments interacting with true creatures like planarian.
- Responsible for the design and implementation of network framework and fine tuning independently. Participated in hardware experiments.

➢ ***Bio-inspired Magnetic Microrobot*** *(In Progress)*

- Design a magnetic microrobot inspired by the locomotion mechanism of fish capable of navigating in 3D space. The future work is about model-based RL for navigation through narrow environment.
- Responsible for the mechanical design and fabrication of the microrobot.

Adaptive Robotic Control Lab, the University of Hong Kong — Aug 2024 – Oct 2024
Summer Intern, Supervisor: Prof.Peng Lu — *Hong Kong S.A.R, China*

➢ ***Fault-tolerant Control for Quadrotor via a Fast RL Approach*** *(Deprecated)*

- Training a small drone to stabilize and track trajectory with a completely fault rotor via RLtools, a C++ RL library for accelerating the training process. It is trained by TD3 and the training process can be finished in seconds.
- Responsible for implementation RL in simulation independently, fine-tuning and deploying network on Crazyflie. After repeated real quadrotor failures, the project was transferred to others to enhance stability.

Projects

Student Agricultural Robotics Competitions | *Mechanic Design, Embedded System* Sep 2023 – Dec 2023

- Deploy Yolo on Jeston Nano for object identification. Build PID controller for navigation on STM32 or Arduino.
- Won first place award in 2024 ASABE Student Robotics Competition about trimming leaves, Anaheim, USA and the second prize in China agricultural robot competition about cutting off strawberries, Wuhan, China.
- Responsible for mechanical design of the end-effectors and building controller for navigation and specific motion.

Technical Skills

Programming Skills: Python, C/C++
Specific Skills: ROS, Matlab, STM32, Solidworks, Arduino
Tools: Pytorch, Numpy, Isaac Sim, XML etc.
Hobbies: Long Distance Running, Fitness