

Yikuan Fang

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EDUCATION

Carnegie Mellon University

Master of Science in Electrical and Computer Engineering (Research Orientated)

Pittsburgh, PA

Dec 2025

Research Interests: Learning-based Robotics, Teleoperation, Safe-RL, RL-Based Drone Navigation.

Supervisor: Prof. Changliu Liu

University of California, Berkeley

Berkeley Global Access

Berkeley, CA

Aug 2023 – Feb 2024

Courses: Deep Reinforcement Learning(A), Digital Image Processing(A+)

Huazhong Univ. of Science and Technology

Bachelor of Engineering in Artificial Intelligence

Wuhan, China

Sept 2020 – July 2024

RESEARCH PROJECTS

Mix-Reality Autonomous High-Speed Racing

Aug 2023 – June 2024

UC Berkeley - Mechanical Systems Control Lab

Berkeley, USA

- Developed hardware solution for racing car self-localization & state collection, low-latency robust telemetry & high-speed tracking, which enabled mix-reality racing and reinforcement learning (RL) training between physical F1 racing car and virtual DRL agent.
- Carried out demos for Sony AI CEO; worked with AI Racing Tech to prove effectiveness of platform on self-driving F1 racing car in Las Vegas racing track during CES 2024 racing challenge.
- Achieved high-speed radio-based connections between racing car and central simulation station, with only 7ms delay and 100Mbps bandwidth over 2km radius.

CL-Based UAV Long-Distance Vision Navigation

Aug 2023 – June 2024

UC Berkeley - Video and Image Processing (VIP) Lab

Berkeley, USA

- Developed curriculum learning (CL)-based RL controller trained with multimodal inputs, including depth camera and own-body orientation to navigate to final destination while avoiding obstacles in localization-denied scenario.
- Performed representation-learning-based image understanding with RL training, achieving 12x reward increase in visual RL and 100x sampling efficiency increase with CUDA-based parallel simulation platform.

CVPR2023 Workshop: Image Matching Challenge

May 2023 – June 2023

HUST – Supervised by Prof. Hao Lu

Wuhan, China

- Proposed pre-trained model-based multi-scale image-matching pipeline, adopting EfficientNet, {DISK& AffNet}+smnn, fine-tuned LoFTR, and SuperPoint+SuperGlue into our DBSCAN-based multi-scale matching pyramid
- Awarded bronze metal in challenge

A Defense Method Against Poisoning Attack in Brain-Computer Interface

Nov 2020 – June 2022

HUST – Supervised by Prof. Dongrui Wu

Wuhan, China

- Developed feature-map-based poisoning sample cleaning method, which achieved high removal rate of over 80%.
- Proposed new Attack Induction Defense pipeline, which integrated input cleaning method and adversarial neural pruning to achieve ~95% drop on Attack Success Rate (ASR).
- Received National Outstanding Student Innovation Project Award.

SKILLS

Programming Languages/OS/Tools: Python, MATLAB, ROS, ROS2, Linux, Git, Docker

Libraries/Simulation platform: PyTorch, TensorFlow, Isaac Lab, Isaac Sim, Mujoco, OpenAI Gym

Embedded Systems: STM32(F1, F4, F7, H7 series), TI DSP, C51, Arduino

Area of expertise: Embedded system coding, Advanced control theory, Adversarial attack and defense, Learning based robotics, Deep reinforcement learning, Learning based UAV control and navigation.