

Yifei Yang

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Education

Beijing Jiaotong University, China

Sep 2023 - present

Lancaster University, UK

Sep 2023 - present

Bachelor of Engineering in Communication Engineering (expected in Jun 2027)

Research Experiences

Project Leader, Undergraduate Innovation Project, Beijing Jiaotong University

May 2024 - May 2025

Advisor: Prof. Hang Zhou (Associate Professor of School of Electronic and Information Engineering, Beijing Jiaotong University)

A Low- and High-Frequency Fusion Framework for Anti-UAV Detection and Tracking

- Proposed a low-high frequency fusion framework for anti-UAV detection and tracking in low-light and dynamic-background scenarios.
- Designed the Decoupling Light and Reconstructing (DLR) module to disentangle illumination cues and extract light-source-aware low-frequency features, improving robustness to lighting variation.
- Developed the Null Space Super-Resolution Model (NSRM) module to recover high-frequency motion details via null-space decomposition and super-resolution, boosting accuracy for fast-moving UAVs.

Research Intern, Institute for AI Industry Research (AIR), Tsinghua University

Jan 2025 - present

Advisor: Prof. Yan Wang (Assistance Professor of Institute for AI Industry Research, Tsinghua University)

Long-term sequence robot world model navigation

Sep 2025 - present

- Propose to change the reasoning paradigm to address the drift problem in autoregressive long-term sequence generation, while maintaining the accuracy of the conditional embedding.
- Explored better compression methods than the sliding window approach to address the problem of context forgetting.

VLA for Robot Manipulation and Navigation

Apr 2025 - Jul 2025

- Surveyed robotics and embodied learning, focusing on VLA policy learning and diffusion and flow matching based action generation.
- Reproduced the $\pi 0$ codebase and validated the execution pipeline end-to-end.

Diffusion Models for Inverse Problems

Jan 2025 - Mar 2025

- Surveyed diffusion and Flow Matching theory and used it to guide model design for fast image generation.
- Reproduced a Shortcut single-step diffusion model on canonical inverse problems.

Work Experiences

Algorithm Intern, Wuxi Research Institute of Applied Technologies, Tsinghua University

Jul 2025-Aug 2025

VLA and World Models for Robot Manipulation and Navigation

- Integrated a robotic arm and multi-sensor stack (camera, force and torque) in ROS2, and debugged end-to-end communication for stable runtime operation.
- Implemented model-to-control interfaces for VLA models ($\pi 0$ -series and world-model inference), enabling direct execution of predicted actions on the robot.
- Validated grasping, placement, and container-operation demos with sim-to-real consistency by unifying observation and action formats and task scripts.

Honors and Awards

Award of S, Mathematical Contest in Modeling (MCM)

May 2024

Beijing Municipal Undergraduate Innovation Project

May 2025

Skills

Programming: Python; PyTorch; Multi-GPU distributed training and debugging.

Foundations: Computer Vision and VLA; Familiar with diffusion models and recent VLA methods.

Research: Capable of end-to-end research execution (modeling, experiments, paper writing).

Hardware: Schematic and multi-layer PCB design.