

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

<i>Long-term sequence robot world model navigation</i>	Sep 2025 - present
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- 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.

<i>VLA for Robot Manipulation and Navigation</i>	Apr 2025 - Jul 2025
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- Surveyed robotics and embodied learning, focusing on VLA policy learning and diffusion and flow matching based action generation.
- Reproduced the π_0 codebase and validated the execution pipeline end-to-end.

<i>Diffusion Models for Inverse Problems</i>	Jan 2025 - Mar 2025
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- 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
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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 (π_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
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Beijing Municipal Undergraduate Innovation Project	May 2025
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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.