

# Zichen Zhao

Research Assistant

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## EDUCATION

**Nanjing University of Aeronautics and Astronautics, Electrical and Information Engineering**

B.S. of Engineering, GPA: 3.5/5.0, CET-6 500

Nanjing, China  
Sep. 2022 - Jun. 2026

## EXPERIENCE

### Research Project

Improved HandsOnVLM(temporarily named)

Nanjing, China  
Mar. 2025 - Present

- **Contribution:** Enhanced the Trajectory Decoder by integrating a diffusion-based generative mechanism, enabling more diverse and accurate trajectory predictions. Additionally, investigated its potential to improve multimodal understanding and action reasoning within Vision-Language-Action (VLA) frameworks.
- **Keywords:** Vision-Language Models, Vision-Language-Action, Embodied Intelligence
- **Expected Outcome:** The work is planned to be submitted to NeurIPS.

### Research Project

Weighted Reverse Convolution for Feature Upsampling in Vision Foundation Models

Nanjing, China  
Sept. 2025-Present

- **Contribution:** Developed Weighted Reverse Convolution (WRC), a highly efficient upsampling architecture derived from a Tikhonov-regularized inverse problem formulation. By solving the optimization objective via a differentiable, closed-form FFT solver, the module avoids expensive iterative computations, effectively recovering fine-grained discriminative structures with minimal inference overhead.
- **Keywords:** Computer Vision, Vision Foundation Models, Machine Learning
- **Status:** Already submitted to ICML, under review

### Independent Research Project

Improved YOLOv11 for Aerial Small Object Detection

Nanjing, China  
Mar. 2025 - Present

- **Contribution:** Developed an enhanced YOLOv11-based algorithm tailored for UAV aerial imagery.
- **Progress:** Designed a modified detection head supporting P2-P5 inputs, inspired by the AFPN architecture, and introduced a progressive feature fusion strategy to mitigate semantic gaps and information loss.
- **Performance:** Achieved moderate improvements on VisDrone2019, raising mAP50 from 34.8% to 38.1% and mAP50-95 from 20.4% to 22.9% over baseline YOLOv11.

## INTERSHIPS

### Zhejiang University

Intern of summer camp, College of CS

Hangzhou, China  
Jul. 2025 - Aug 2025

**Project:** AI Study Companion

- **Contribution:**
  - Developed workflows and plugins on the Coze platform by integrating APIs of open-source text-to-image (t2i) and text-to-video (t2v) models.
  - Developed the frontend of a WeChat Mini Program for t2i and t2v generation, integrating APIs from workflows built on the Coze platform.
  - Leveraged Volcengine Object Storage Service to temporarily store media assets and enable asynchronous long-video processing, and developed a custom object storage plugin in the Coze IDE utilizing this service.

## SKILLS

- **Deep-learning:** PyTorch, TensorFlow
- **Programming:** Python, C++, Golang, git, Linux/Bash/Shell scripting,

## AWARDS

### The Challenge Cup National Competition

Grand Prize

Nanjing, China  
Nov. 2025

### LanQiao Cup, Jiangsu Provincial Contest – C/C++ Category

Third Prize

Nanjing, China  
May 2024

### Academic Scholarship

Third and Second Prize

Nanjing, China  
2022, 2023, 2024

### Outstanding Student Scholarship

Second Prize

Nanjing, China  
2022, 2023, 2024