XIAOYE ZUO

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Website ◇ LinkedIn ◇ Github

EDUCATION

University of Pennsylvania, School of Engineering and Applied Science — May 2024, Philadelphia, PA
Master of Science in Engineering in Robotics — GPA: 3.87/4.0

University of California, San Diego, Jacobs School of Engineering — June 2022, San Diego, CA
Bachelor of Science, Major in Computer Engineering, Minor in Business — GPA: 3.82/4.0
Honors: cum laude, IDEA Scholar, Henry G. Booker Award Recipient

SKILLS

Programming Languages: Python, C++
Software : PyTorch, OpenCV, ROS, AWS, Docker, Slurm

WORK EXPERIENCE

Robotics Intern @ Azalea Robotics (Seed) — May 2025 - Present
- Developed a real-time multi-camera object tracking pipeline and achieved millimeter-level accuracy in state estimation
- Designed data generation workflows in NVIDIA Isaac Sim, synthesizing labeled point clouds and images for model training
- Engineered an automated extrinsic-calibration tool, reducing camera-robot setup time by 80%

Research Intern @ Penn Computer Graphics Lab — Oct. 2024 - Jan. 2025
- Built an AI-driven exercise coach that captures human motion from videos and generates form correction feedback
- Trained a large multimodal model that aligns motion pairs with text using pre-trained motion encoder and LLM
- Implemented a text-guided motion editing retrieval model using contrastive loss to evaluate LLM feedback

Computer Vision Engineer @ Daxo Industries Inc. (Pre-Seed) — Mar. 2023 - Oct. 2023
- Hired to start the computer vision engineering team, focusing on the real-world deployment of crop analysis
- Developed a 3D fruit detection pipeline at 30 FPS using ROS and PyTorch with a ZED stereo camera
- Implemented production level RGBD image streaming and storage pipeline for an online learning system using AWS S3
- Developed an easily deployable vision pipeline for NVIDIA Jetson using Docker

Research Intern @ Advanced Robotics and Controls Lab — Jan. 2021 - Apr. 2022
- Built a blower-based ventilator using PID controller and pressure sensors to simulate respiratory motion on a lung phantom
- Implemented real-time lung motion tracking with a Kinect Azure RGBD camera and ArUco markers using ROS and OpenCV
- Designed a compact PCB using Altium to improve circuit reliability and protect microcontrollers from overvoltage

TECHNICAL EXPERIENCE

Contrastive Language-Image-Path Pretraining — Mar. 2024 - May. 2024
- Trained a multimodal model to predict the most relevant trajectory given an image sequence and a text instruction
- Achieved more than 35% increase in accuracy for vision-language navigation through finetuning on the RXR dataset

Facial Landmark Tracking — Oct. 2023 - Dec. 2023
- Designed a TAPIR-based facial landmark tracker, improving temporal consistency in long videos
- Lowered tracking error by 30% using SOTA facial landmark detectors including ADNet and PIPNet

Autonomous Driving @ TritonAI — Oct. 2020 - Jan. 2021
- Built and trained an autonomous RC car to race on outdoot tracks using NVIDIA's Jetson Nano and Jetracer AI framework
- Designed support structures using SolidWorks and 3D-printed detachable magnetic camera mount for collision protection
- Implemented perspective transform on RGB images to generate birds-eye views that improved lane detection efficiency

PUBLICATIONS

K. Wanchoo, **X. Zuo**, H. Gonzalez, S. Dan, G. Georgakis, D. Roth, K. Daniilidis, and E. Miltsakaki, "NAVCON: A Cognitively Inspired and Linguistically Grounded Corpus for Vision and Language Navigation," arXiv preprint arXiv:2412.13026, Dec. 2024. Available: `https://arxiv.org/abs/2412.13026`