Zihao Zhao

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Personal Page: https://neo1zh.github.io

Education

Shanghai Jiao Tong University (SJTU)   September 2021 - June 2025 (Expected)

B.Eng in Automation (*Zhiyuan Honor Program*, *Talented Student Program in SJTU, Top 5%*)   Shanghai, China

- cGPA 3.82/4.3 (89.4/100)

University of Notre Dame   July 2024 - Sep 2024

Research assistant in Department Computer Science Engineering advised by *Prof. Danny (Ziyi) Chen*   IN, US

- Research interest: 3D vision model in medical image; Alignment in Vision-Language Model (VLM) in medical image

University of North Carolina at Chapel Hill   Sep 2024 - Current

Remote researcher assistant in Department of Computer Science advised by *Prof. Huaxiu Yao*   NC, US

- Research interest: VLM; VLM agent

Research Experience

Multimodal-Grad   Sep 2024 - Current

Instructor: *Prof. Huaxiu Yao*

- Utilize VLM agent to generate gradient for both text and visual prompt to improve the performance of VLM on VQA benchmarks.
- 20% improvement on LLAVAw benchmark using our method on LLAVA-v1.5-7b model.

Publication: Improving Alignment in LVLMs with Debiased Self-Judgment. **(Submitted to NAACL 2025)**

Conditional Segmentation for Medical Image   July 2024 - Current

Instructor: *Prof. Danny (Ziyi) Chen*

- Use age-specified tokens and combine CNN and Transformer to achieve high performance on very sparse annotated multi-age data.

Publication: UniCoN: Universal Conditional Networks for Multi-Age Embryonic Cartilage Segmentation with Sparsely Annotated Data. **(Submitted to Scientific Report)**

Intelligent Disinfection Robot   Sept. 2022 - Oct. 2023

Instructor: *Professor Yao Guo(School of Biomedical Engineering, SJTU), Email: yao.guo@sjtu.edu.cn*

- Propose a vision-based method for accurately detecting high-touch areas in the surroundings, based on yolov5, enabling the disinfection robot to achieve superior disinfection efficiency.
- Combine RRT and APF and propose a dynamic pedestrian avoidance method, namely Socially Aware APF (SA-APF), which can predict the movement trend of pedestrians and plan the path in real-time.

Publication: Muhang He, Yunfei Luan, Yudong Tian, Chengjie Lin, Yunhan Fang, **Zihao Zhao**, Jianxin Yang, Yao Guo, "Intelligent Disinfection Robot with High-Touch Surface Detection and Dynamic Pedestrian Avoidance", 2024 IEEE International Conference on Robotics and Automation **(ICRA)** (Accepted).

Project

Underwater collaborative lighting platform   July 2023 - February 2024

Instructor: *Prof. Jianping He*

- Design and build a Remotely operated underwater vehicle (ROV) equipped with cameras and lights to investigate underwater dark scene from scratch.
- Fuse multidimensional information such as pressure, vision, and sonar to optimize control processes.
- *Online demo* (Chinese Version)

Awards & Honors

- **National First Prize**, "TI Cup" China Undergraduate Electronics Design Contest, Shandong, China(top1%, only 2 projects won this prize in SJTU)   2023

- **Huawei Scholarship**, Shanghai Jiao Tong University and Huawei Technologies Co.(CN$10,000, top 2 student in Zhiyuan Honor Program) 2023
- **Merit Student**, Shanghai Jiao Tong University 2022
- **Alumni Scholarship**, Shanghai Jiao Tong University 2022
- **Zhiyuan Honor Scholarship**, Shanghai Jiao Tong University(CN$15,000) 2021&2022&2023
- **First Prize**, Chinese Chemistry Olympiad(top1%) 2020

Work Experience

SJTU-NIMO   Sept. 2021 - Sept. 2023
- Core Group Member, Senior Network Administrator
- Maintain the network of dormitory and teaching buildings in SJTU
- 4 hours a week, 150+ hours in total.

Language Proficiency

- English: Advanced proficiency (TOEFL 100/120)
- Mandarin: Native proficiency
- Wenzhouness: Native proficiency
- Cantonese: Conversational