Yuanhao Zou

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Education

University of Michigan, Ann Arbor, MS in Electrical and Computer Engineering — Aug 2023 – May 2025

- GPA: 4.0/4.0
- **Coursework:** Computer Vision (A), Machine Learning (A), Advanced Computer Vision (A), Robotic Mathematics (A^+), Large Language Model.

Central South University, BE in Computer Science and Technology — Sep 2019 – Jun 2023

- GPA: 88/100
- **Coursework:** Machine Learning, Distributed System & Cloud Computing, Digital Image Processing, Computer Vision, Android Development, Bioinformatics, Computer Architecture, Data Structure Algorithm.

Publications

- [**Submitted to CVPR 2025, First Author**] MVCM: Enhancing Multi-View and Cross-Modality Alignment for Medical Visual Question Answering and Medical Image-Text Retrieval.
- [**Submitted to CVPR 2025, First Author**] Alignment, Mining and Fusion: Representation Alignment with Hard Negative Mining and Selective Knowledge Fusion for Medical Visual Question Answering.
- [**Under Review of Computer Methods and Programs in Biomedicine, Co-First Author**] HFA-UNet: Hybrid and Full Attention UNet for Thyroid Nodule Segmentation.

Research Experience

University of Nottingham Ningbo China (UNNC), Prof. Xiangjian He — Sep 2022 – Aug 2023

- **Medical Image Segmentation:** Developed a deep learning network integrating U-Net and Transformer for hybrid attention and multi-scale fusion modules to address challenges with limited samples and small objects in a new cervical dataset.
- **Outcomes:** a paper currently under review by the journal **Computer Methods and Programs in Biomedicine**.

Stony Brook University, Prof. Zhaozheng Yin — Feb 2024 – Nov 2024

- **Medical Vision-Language model:** (1) Addressed challenges in cross-modality understanding and the underutilization of multi-view images in medical radiology datasets, and applied to Medical VQA and Medical Image-Report Retrieval. (2) Developed a unified representation alignment approach with hard negative mining and selective knowledge fusion to enhance Med-VQA performance significantly.
- **Outcomes:** First Author of two research papers submitted to **CVPR 2025**.

Project Experience

Multi-Modality Semi-Supervised Learning for Ophthalmic Biomarkers Detection

- Contributed to a biomedical image classification project at the University of Nottingham Ningbo China.
- **Outcome:** Published a technical report in **IWAIT 2024**.

Improvement of Prototypical Contrastive Learning

- Led a self-supervised learning project at the University of Michigan, focusing on improvements clustering methods for Prototypical Contrastive Learning (PCL) at the University of Michigan.
- Replaced the original K-means clustering with Gaussian Mixture Model (GMM) clustering and Spectral Clustering, comparing results to the baseline PCL performance.

Technologies

Proficient Technologies: Pytorch, Linux, Lightning, Git