Zihao Wei

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Education

University of Michigan Aug. 2023 – Apr. 2025 (Expected)
M.S. in Computer Science and Engineering GPA:4.0/4.0 *Ann Arbor, Michigan, USA*

University of Michigan Aug. 2021 – Apr. 2023
B.S.E in Computer Science and Engineering GPA:3.9/4.0 *Ann Arbor, Michigan, USA*

Shanghai Jiao Tong University Sep. 2019 – Aug. 2023
B.S. in Electronic and Computer Engineering GPA:3.7/4.0 *Shanghai, China*

Experience

Research Assistant Jun. 2022 – Present
Owen's Lab, University of Michigan *Ann Arbor, Michigan, USA*

- Enhanced masking strategies for vision-language pretraining, improving efficiency and feature quality.
- Utilized synthetic data for improving multi-modality representation learning.

Research Assistant May. 2022 – May. 2023
VLAA, University of California, Santa Cruz *Santa Cruz, California, USA*

- Optimized MAE training and inference processes, achieving 80% reductions in computational and data costs.
- Explored NeRF and diffusion model in microscopy reconstruction.
- Improved medical image segmentation with masking based pretrained models.

Selected Projects

Insta Java, JavaScript, HTML, CSS, Redis, MySQL, React, Spring Boot
Full Stack Instagram-like Web Application

- Developed a multi-thread backend system using **Java** and **Spring Boot**.
- Managed data effectively and efficiently with **Redis** and **MySQL**.
- Crafted a responsive and dynamic front-end interface with **React**.
- Deployed the application on **AWS**, focusing on scalability and high availability.

3DScan Python, PyTorch, Swift, Flask, Docker, Nginx
Mobile Application for 3D Scanning of Real-World Objects

- Implemented **Swift**-based front-end for efficient image capture in 3D scanning.
- Implemented image processing algorithms and integrated AR functionality with **ARKit**.
- Developed a **PyTorch**-powered backend with **Flask**, using NeRF for 3D model generation.
- Handled deployment complexities using **Docker** and **Nginx**.
- Led the project team, strategically planning and producing comprehensive documentation to streamline development processes.
- Enhanced team collaboration by effectively communicating technical solutions, ensuring alignment and coherence in project efforts.

A-ESRGAN Python, PyTorch
Super-Resolution Application for Real-Life Imagery

- Developed an new method for super resolution that enhancing visual quality.
- Implemented the framework with **Python** and **PyTorch** with performance optimization.
- Maintained the open-source project on GitHub, receiving **over 100 stars**.

Publication

Zihao Wei*, Zixuan Pan* and Andrew Owens . Efficient Vision-Language Pre-training by Cluster Masking. CVPR 2024.

Mude Hui*, **Zihao Wei***, Hongru Zhu, Fei Xia and Yuyin Zhou , MicroDiffusion: Implicit Representation-Guided Diffusion for 3D Reconstruction from Limited 2D Microscopy Projections. CVPR 2024.

Zihao Wei, Chen Wei, Jieru Mei, Zeyu Wang, Xianhang Li, Hongru Zhu, Huiyu Wang, Alan Yuille, Yuyin Zhou and Cihang Xie , Masked Autoencoders are Secretly Efficient Learners. CVPRW 2024.

Zihao Wei, Yidong Huang, Yuang Chen, Chenhao Zheng and Jingnan Gao. A-ESRGAN: Training Real-World Blind Super-Resolution with Attention U-Net Discriminators. PRICAI 2023.

Yiqing Wang*, Zihan Li*, Jieru Mei*, **Zihao Wei***, Li Liu, Chen Wang, Shengtian Sang, Alan L. Yuille, Cihang Xie and Yuyin Zhou . SwinMM: Masked Multi-view with Swin Transformers for 3D Medical Image Segmentation. MICCAI 2023 (Oral).

Skills

Programming Lanuage: *JAVA*, *Python*, *C++*, SQL, Swift, JavaScript, HTML, CSS
Tools: Git, Markdown
Language: Chinese, English