Yuhao Shen

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Education

The Chinese University of Hong Kong, Shenzhen Shenzhen, China
M.Phil. in Computer Science Sept. 2025 – Jun. 2027 (Expected)

- **Supervisor:** *Prof. Juexiao Zhou* @ HEAL Lab
- **Research Interests:** AI for Healthcare, Large Language Models(LLMs), and Medical Imaging

Hangzhou Dianzi University Hangzhou, China
B.Eng. in Computer Science and Technology Sept. 2021 – Jun. 2025

- **Advisor:** *Prof. Renshu Gu* and *Fangli Guan*
- **GPA:** 89.35/100 (Top 10%)

Internship Experience

The Chinese University of Hong Kong, Shenzhen
Research Assistant Mar. 2025 – Apr. 2025

- Reproduced the LiteMedSAM framework to understand promptable segmentation models and explored the full pipeline from data preprocessing to inference.
- Processed and organized the HAM10000 skin lesion dataset, generating aligned segmentation masks and classification labels for multi-task model development.
- Designed a ViT-enhanced EViT-UNet architecture for joint segmentation and classification; incorporated transformer modules into the encoder to improve global feature representation and model performance.

XiDian University Hangzhou Institute of Technology
Research Assistant Jul. 2023 – Sept. 2023

- Designed a 3D point cloud algorithm for pose estimation in real-time detection of disordered, occluded bulk materials, leveraging point-to-point features for improved accuracy.
- Optimized point cloud normal direction to align with the viewpoint of the imaging device, enhancing consistency.
- Developed a practical object grasping system based on this algorithm, achieving reliable real-world performance.

Research Experience

Exploring U-Net's Generalization Capability through Domain Adaptation May 2024 - Jul. 2024

- Enhanced diagnostic methods and treatment plans for medical image segmentation by applying neural networks, showing the potential of deep learning to improve medical image analysis and network architecture generalization.
- Utilizing BraTs series datasets, the benchmark datasets for brain tumor identification, our neural network effectively segments brain tumors by extracting features and precisely localizing boundaries, opening avenues for improved diagnostic methods and treatment plans.
- Validated the robustness and generalization capabilities of U-Net by comparing its performance across various domains, demonstrating its predictable application for medical imaging processing.

Comparative Visualization of Neural Network Models Using Grad-CAM Nov. 2023 - Jan. 2024

- Developed Grad-CAM by implementing a class activation mapping technique that uses gradients from the final convolutional layers to create heatmaps, highlighting the key image regions for model predictions and enhancing interpretability.

- Explored Grad-CAM outputs across VGG, ResNet, and ViTs, investigating how the tool highlights relevant image regions and how different models perceive images.
- Demonstrated through experiments that class-discriminative heatmaps effectively reveal model attention areas, proving Grad-CAM's capability to enhance model interpretability.

Further Exploration of M&Ms Dataset with Various Models Dec. 2022 - Jan. 2023

- Contributed to the M&Ms challenge by designing and optimizing segmentation models, advancing the development of generalizable models for clinical use in CMR segmentation, and providing a reference dataset for future model evaluation and research.
- Gained expertise in image resizing, target matching, and model performance evaluation using metrics such as Dice Similarity Coefficient and Jaccard Index.
- Evaluated multiple neural networks (U-Net, U-Net3+, TransU-Net) on the dataset, demonstrating their potential and providing valuable insights for future medical image segmentation research and model training.

Conferences & Publications & Patents

[C1].Conference: **Yuhao Shen**.(2024)Exploring Generalization Capability of U-net Architecture through Domain Adaptation. *ICAIC 2024.*
[C2].Conference: **Yuhao Shen**, Xiyan Huang.(2024)A Comparative Visualization Analysis of Neural Network Models using Grad-CAM. *CSI 2024.*
[J1].Journal: Ce Shen, Shuiming Wang, **Yuhao Shen**, et al.(2023)Research and Application of 3D Point Cloud Matching Algorithm Based on Machine Vision in Real Time Detection of Bulk Materials. *Automation Applications.*
[P1].Patent: Machine vision universal image browser system.(2023SR1244870)
[P2].Patent: A dock production management system based on big data.(CN115936373A)
[P3].Patent: The utility model relates to a laser detection method for port machine equipment.(CN117970367A)

Awards

HDU Excellent Graduate Student	Jun. 2025
HDU Campus Volunteer Star in 2024	May 2024
Outstanding Volunteer in 19th Hangzhou Asian Games	Dec. 2023
HDU First-class Scholarship	Jun. 2023 & Jan. 2024
Zhejiang Provincial Government Scholarship	Oct. 2022
HDU Second-class Scholarship	Feb. 2022 & Oct. 2022

Leadership & Extracurricular Experience

President at **HDU Volunteer Association** May 2023 - May 2024

- Being responsible for the whole university's volunteer organization and recruitment for many large competitions such as Hangzhou Asian Games, World Internet Conference, etc., and arranged interviews for more than 10,000 people and organized service for more than 3,000 sessions.

Volunteer Team Leader at **The 19th Asian Games Hangzhou 2022** Sept. 2023 - Nov. 2023

- Serving at Information Technology Command Centre (ITCC) of the Hangzhou Asian Games, look for potential problems in metadata, synchronization, and presentation through information transportation in AIGC.