HAORAN ZHANG

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EDUCATION

Carnegie Mellon University (CMU)   Pittsburgh, PA
Master of Science in Electrical and Computer Engineering   May 2025

Huazhong University of Science and Technology (HUST)   Wuhan, China
Bachelor of Engineering in Automation (Honored Class)   June 2023
Outstanding Graduate   GPA: 3.90/4.00   GRE: V158 Q169 W3.5
Courses: Pattern Recognition and Machine Learning (93/100), Foundations of Data Science (93/100),
Control Theory I (97/100) and II (95/100), Power Electronic Technology (90/100).

The Technical University of Munich (TUM)   Munich, Germany
Exchange student in Electrical and Computer Engineering Department   April 2023 - August 2023

SKILLS

Computer Languages:	Python, C/C++, MATLAB
Tools & Packages:	Pytorch, Numpy, Pandas, LaTeX
Languages:	English (IELTS 7.5, Speaking 7.0), Chinese (Native Speaker)

RESEARCH EXPERIENCE

The Technical University of Munich   April 2023 - August 2023
Research Assistant supervised by Dr. Zhongliang Jiang   *Munich, Germany*

· Designed an algorithm to reconstruct the 4D artery model from ultrasound videos, showing the motion of the artery in 3D.
· Implemented motion magnification algorithm to enhance the motion of the artery and capture disordered motions of the artery, facilitating the detection of potential diseases of arteries.
· Implemented a method based on the Transformer and Siamese-like network for tracking 2D arteries from ultrasound videos.

The Hong Kong University of Science and Technology   February 2022 - November 2022
Research Assistant supervised by Prof. Hao Chen   *Hong Kong SAR*

· Proposed a pyramidally downsampled 3D Transformer, improving the model's accuracy by 1.72% and efficiency by 12% on brain stroke lesion and prostate segmentation tasks.
· Proposed a cluster-based domain-adversarial learning to exploit domains at a fine-grained level, improving generalization ability by 2.61% on multi-domains segmentation tasks.
· The work has been accepted by the International Symposium on Biomedical Imaging (ISBI) 2023.

Huazhong University of Science and Technology   September 2021 - December 2021
Research Assistant supervised by Prof. Linqiang Pan   *Wuhan, China*

· Studied the principles and applications of DNA computing and built molecular circuits.
· Designed DNA switching circuits with Visual DSD to simulate the computational devices made of DNA.

North Carolina State University   July 2021 - August 2021

GEARS Program supervised by Prof. Majed Al-Ghandour   *Remote*

· Studied how to detect solar panels with the help of computer vision.

· Designed algorithms to detect solar panels in images and applied five models to different situations.

· Made a detailed academic poster to illustrate the project.

ACHIEVEMENTS/AWARDS

Outstanding Graduate, awarded by HUST

Scholarship for Scientific and Technological Innovation, awarded by HUST

Honorable Mention in Mathematical Contest in Modeling 2022, awarded by COMAP

PUBLICATIONS

2023

· H. Zhang and H. Chen, "Efficient 3D Transformer with cluster-based Domain-Adversarial Learning for 3D Medical Image Segmentation", 2023 IEEE 20th International Symposium on Biomedical Imaging (ISBI), Cartagena, Colombia, 2023, pp. 1-5, doi: 10.1109/ISBI53787.2023.10230683.

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