Zexin FENG

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EDUCATION

Southern University of Science and Technology | Shenzhen, China **09/2022-06/2025 (expected)**

B.Eng. in Computer Science, **Major GPA: 3.85/4.0**

Core Courses: Discrete Mathematics, Probability and Statistics, Principles of Database Systems, Digital Logic, Principles of Computer Composition, Data Structures and Algorithms Analysis, Artificial Intelligence.

AWARDS

- **China National Scholarship** (2024), **Top 0.2%**
- **School Motto Scholarship "Truth" Special Award** (2024)
- Outstanding Student (2023), Top 20%
- Best Progress Award (2022), Semester Progress Award (2022), Academic Year Progress Award (2023)

PUBLICATIONS

[1] **Z. Feng**, N. Zeng, J. Fang, X. Wang, X. Lu, H. Meng, J. Liu. "Flattening Singular Values of Factorized Convolution for Medical Images", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)* April 2024

RESEARCH EXPERIENCE

Xiaohui Xie's Lab — Irvine, California

Undergraduate Research Assistant, supervised by Prof. Xiaohui Xie

OCTA Generation from OCT by Diffusion and Projection **09/2024-Present**

- Addressed the consistency and complementarity between OCT B-scans and OCTA B-scans
- Proposed a novel workflow for OCT - OCTA translation using Diffusion
- Designed a ControlNet with image label prompt to synthetic OCTA data
- Utilized contrastive learning on image label embedding to improve the explainability of the model

iMED Intelligent Medical Imaging — Shenzhen, China

Undergraduate Research Assistant, supervised by Prof. Jiang Liu

CNN Optimization for Efficient in Medical Image Processing **05/2023-09/2023**

- Addressed the limitations of factorized convolutional in CNNs by proposing SFConv, a method to enhance expressiveness while reducing complexity
- Demonstrate 98% of parameter compression with performance maintenance on 2 public datasets
- Published a conference paper at ICASSP 2024 ([1])

Enhancing Retinal Vessel Segmentation in OCTA Images **12/2023-04/2024**

- Identified differences in vessel segmentation tasks in OCTA images and designed the RRA-Net with resolution restoration and vessel guidance
- Developed a vessel topologizing algorithm and novel metrics to refine the assessment of small vessels, including adjustments to Dice scores
- Demonstrated the effectiveness of the proposed methods and evaluation metrics across three distinct datasets
- Complete, to be submitted to ICME 2025

COMPETITION & PROJECTS

Climbing Plan **10/2024-Present**

- Funded by Guangdong Provincial Science and Technology Innovation Strategic

- Utilizing temporal eye movement medical knowledge to improve diagnosis algorithm of diabetic retinopathy
- Designing a Time-Series Model to combine experts' eye movement with CFP images
- Collected more than 100,000 CFP images with diabetic retinopathy labels

Ophthalmology Diagnosing Platform **04/2024-Present**

- Funded by National College Students' Innovation and Entrepreneurship Training Program
- Designing an Ophthalmology diagnosing platform website to assist clinic doctors and boost the speed of diagnosis by providing multiple model results
- Improving segmentation algorithms for CFP and OCTA

3rd Prize, China Collegiate Computing Contest-AI Innovation Contest **05/2023-06/2023**

- Developed an eye disease consultation system using Baidu Paddle, and built a dataset for language model finetuned in Medical Diagnosing
- Built medical record system, tracking the timeline of patient medical records
- Designed a framework, integrating Multi-Modal Language Model with LLMs, providing natural language output of disease analysis and diagnosis

SKILLS

Languages: Chinese (native), English (fluent)

Programming: Java, Python (PyTorch, NumPy, etc.), C/C++, Verilog, Shell (Linux Shell), LaTeX