Bingqin Wang

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Education

Southern University of Science and Technology Shenzhen, China

Bachelar of Engineering in Computer Science and Engineering 2022 - Present

- GPA: 3.75/4

Publication

[ICIC 2025, Oral] **Bingqin Wang**, Haojin Li, Heng Li, Hemu Liu, Jiang Liu. **BIRF-SDG: Band Importance Aware Random Frequency Filter Based Single-source Domain Generalization for Retinal Vessel Segmentation.**

Research

Research Intern at iMed Lab, SUSTech Shenzhen, China

Advise by **Prof. Jiang Liu** 2024.6 - 2024.12

- **Pytorch based medical image processing: segmentation and enhancement**: Develop a boundary based algorithm for dynamic image processing.
- background: The boundary information of the image is crucial for segmentation. Preliminary processing of the boundary by the difference between the boundary and the background will improve the accuracy of the segmentation process.
- Contribution: develop a boundary assisted segmentation method to enhance both accuracy and connectivity.

Research Intern at Research Institute of Trustworthy Autonomous Systems, SUSTech Shenzhen, China

Advise by **RAP Heng Li**, under submission to ICIC 2025 2025.1 - present

- BIRF-SDG: Band Importance Aware Random Frequency Filter Based Single-source Domain Generalization for Retinal Vessel Segmentation. [ICIC 2025, Oral]
- background: Randomly augmenting images through frequency domain information is a common method for single-source domain generalization. However, this augmentation may damage important frequency domain information. Therefore, it is necessary to score the frequency domain information to avoid the loss of important frequency bands during the augmentation process. At the same time, the accuracy of segmentation can be improved by analyzing the boundary information and using the attention mechanics in the segmentation process.
- Develop a cost-effective band importance aware algorithm for medical image to improve single-source domain generalization, which improves the accuracy of retinal vessel segmentation in target domain.

Stone Brook University New York, America

Advise by **RA Chenyu You**, under submission to ICIC 2025 2025.4 - present

- **Sparse Coding for Adaptive Representative**
- background: In traditional representation methods, it is common to use variable length encoding, which will affect the update of the encoding method. We propose a sparse encoding method that only requires adding an MLP to the pre-trained model to improve the update efficiency of the model.
- Develop a cost-effective band importance aware algorithm for sparse encoding and image to text method, which improves the accuracy of training and generalization performance.

Projects

AI Language Detection 2025.5-2025.6

An fune tune bert based model for AI language detection

- Implement bert-based multilingual (Chinese and English) AI language detection that is cross-domain and cross-language.
- Implement multi-model (GPT-2 and claude) AI language detection that is based on language feature distribution.

CourseAwareIDE 2025.5-2025.6

Typescript-bsaed vscode plugin for better course experience

- Implement expandable shared PDF edition.
- Implement user rights management and file management.

Face Detection 2024.12-2025.1

A light-weight face detection program for privacy protect using C++

- Support real-time face detection and face masking wither figure or variable mosaics

Zoom Workplace 2024.10-2024.12

An P2P and CS mode online video meeting for flow control using Python

- Implement base real-time multi-meeting with multi-person and simple interface.

CPU Kernel 2024.4-2024.6

A single-cycle RISC-V CPU kernel designed on FPGA board using Verilog for RV32I instruction set.

- Support basic storage, computing, system calls, etc. with reference to Computer Organization and Design: The Hardware/Software Interface.

Award

Third Prize of Outstanding Student Scholarship, SUSTech
Outstanding Minister of the Propaganda Department, SUSTech

Skills

Programming: Python, Java, C/C++, SQL, Assembly, Typescript, Verilog
Languages: Chinese(native), English