Yiqing Wang

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Education

Duke University, Durham, North Carolina, the United States Aug. 2023 – Present

Ph.D. Candidate Vision and Image Processing Lab, Department of Biomedical Engineering (BME)

- GPA: 3.84/4.0

Shanghai Jiao Tong University (SJTU), Shanghai, China Sep. 2019 – Jun. 2023

Bachelor's Degree of Eng. major in Biomedical Engineering, minor in Computer Science and Technology

- GPA: 3.84/4.3 (Top 10%)

Honor and Awards

Oral Presentation at MICCAI 2023	Oct. 2023
Outstanding Graduate of Shanghai Jiao Tong University	Jun. 2023
Scholarship of School of Biomedical Engineering Alumni Association	Nov. 2022
Merit Student of Shanghai Jiao Tong University	Oct. 2022
Shanghai Municipal Government Scholarship	Oct. 2021
Class A Scholarship of Shanghai Jiao Tong University	Oct. 2020

Scholar Experiences

VIP Lab @ Duke directed by Sina Farsiu Aug. 2023 – Present

Research Assistant A knowledge-enhanced multi-modality clinical assessment system for integrative analysis of textual and visual features

- Developed a multi-modality clinical assessment framework that leverages structured patient metadata and unstructured clinical notes to support clinical decision-making with large language models (LLMs).
- Built an expert-curated medical knowledge base using Retrieval-Augmented Generation (RAG) to enhance domain-specific language comprehension and reasoning.
- Integrated latent representations from imaging and textual modalities using Multi-Modal LLMs (MM-LLMs) to uncover cross-modality relationships and improve diagnostic performance.
- Submitted an abstract to ARVO 2026 and preparing a journal manuscript.

Research Assistant A multi-granularity language learning approach to boost visual understanding

- Proposed a novel contrastive learning framework that enables simultaneous multi-label and cross-granularity alignment.
- Provided a set of multi-label, multi-granularity learning objectives to enhance their visual understanding.
- Designed a structured multi-granular, multi-label system and construct large-scale multi-granular retinal and X-ray image-text datasets.
- Under review of *ICLR 2026* and available at arXiv.

Research Assistant An Automated Quantitative Ulcer Analysis (AQUA) algorithm to classify Microbial keratitis (MK) organism types

- Proposed a contrastive-learning-based method to extract robust features across different data patterns.
- Developed a triple-stage multi-modality framework to integrate features of different modalities.
- Expected to publish a journal article in 2026

IMIT @ SJTU & Image Medraw Technology Co., Ltd directed by Lichi Zhang Nov. 2022 – May. 2023

Medical Software Development Intern A 2D/3D registration method for full-length images of lower limbs

- Constructed the first 2D-3D registration network for X-rays and CT images of full-length lower limbs.
- Adopted the shifted-window self-attention and the cross-attention mechanism for efficient feature extraction.
- Proposed SigmoidDiceLoss, which makes the registration of discrete labels continuous and differentiable.
- Submitted an Chinese Patent (under review).

CCVL @ JHU directed by Alan Yuille & **VLAA @ UCSC** directed by Yuyin Zhou & Cihang Xie
June. 2022 – Nov. 2022

Summer Internship Multi-view MAE for 3D medical image representation learning

- Presented the first multi-view pipeline for self-supervised medical image analysis.
- Achieved a comparable performance to the current state-of-the-art method with less training cost.
- Published in *MICCAI 2023*, awarded as *Oral Presentation*.

Advanced MRI Lab @ SJTU directed by Hongjiang Wei Feb. 2022 – Jan. 2023

Internship Brain region segmentation and age estimation using QSM

- Created a novel network to segment several key brain areas on QSM images to improve brain age prediction.
- Improved brain age estimation compared to previous studies based on T1w MRI.
- Published in *ISMRM 2023* and *IEEE Journal of Biomedical and Health Informatics (JBHI)*.

PUBLICATIONS

Z Li[1], **Y Wang**[1], S Farsiu, P Kinahan. Boosting Medical Visual Understanding From Multi-Granular Language Learning. *arXiv preprint arXiv:2511.15943.* 2025 Nov 20.

J Ong, M Lu, C Thanitcul, M Pawar, JN Hart, E Vogt, S Farsiu, **Y Wang**, P Dmitriev, A Gupta, N Nallasamy & MA Woodward. Automated Deep Learning Classification of the Quality of Slit-Lamp Photographs of Microbial Keratitis. *Investigative Ophthalmology & Visual Science*, 66(8), 4436-4436.

Z Yang, MA Woodward, LM Niziol, M Pawar, NV Prajna, A Krishnamoorthy, **Y Wang**, M Lu, S Selvaraj, & S Farsiu. Self-knowledge Distillation-empowered Directional Connectivity Transformer for Microbial Keratitis Biomarkers Segmentation on Slit-lamp Photography. *Medical Image Analysis*, 102, 103533.

M Chen[1], **Y Wang**[1], Y Shi[1], J Feng, R Feng, X Guan, ... & H Wei. Brain Age Prediction Based on Quantitative Susceptibility Mapping Using the Segmentation Transformer. *IEEE Journal of Biomedical and Health Informatics*, vol. 28, no. 2, pp. 1012-1021.

Y Wang[1], Z Li[1], J Mei[1], Z Wei[1], L Liu, C Wang, ... & Y Zhou. SwinMM: Masked Multi-view with Swin Transformers for 3d Medical Image Segmentation. *2023 International Conference on Medical Image Computing and Computer-Assisted Intervention* (pp. 486-496).

Y Wang, Y Shi, H Wei. A Brain Age Estimation Network based on QSM using the Segment Transformer. *2023 International Society for Magnetic Resonance in Medicine (ISMRM).*

SERVICE

Conference Reviewer MICCAI 2025; MICCAI 2024;
Journal Reviewer Image and Vision Computing; IEEE Journal of Biomedical & Health Informatics (JBHI);

SKILLS

Programming Languages Python, C, C++, MatLab
Deep Learning Frameworks PyTorch, TensorFlow, Keras