

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%)

🔍 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 knowledge-enhanced multimodal clinical assessment framework integrating structured patient metadata and unstructured clinical text to support LLM-based clinical decision-making.
- Built an expert-curated medical knowledge base using Retrieval-Augmented Generation (RAG) to improve domain-specific language understanding and reasoning.
- Integrated imaging and textual representations via multimodal LLMs to model cross-modality relationships and improve diagnostic performance.
- Abstract accepted by *ARVO 2026*; journal manuscript in preparation.

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

- Proposed a novel contrastive learning framework enabling joint multi-label and cross-granularity alignment for medical image understanding.
- Designed multi-granular learning objectives to improve representation consistency across label hierarchies.
- Constructed large-scale multi-granular retinal and X-ray image-text datasets for systematic evaluation.
- Accepted by *ICLR 2026*; available on arXiv.

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

- Proposed a contrastive-learning-based approach to extract robust representations across heterogeneous clinical data patterns.
- Developed a triple-stage multimodal framework to integrate imaging, metadata, and clinical features for organism-type classification.
- Journal manuscript in preparation (expected 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

- Developed a learning-based 2D-3D registration network for full-length lower-limb X-ray and CT images.
- Incorporated shifted-window self-attention and cross-attention mechanisms to improve feature extraction efficiency.
- Proposed SigmoidDiceLoss to enable differentiable optimization for discrete anatomical labels.
- Chinese patent submitted (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

- Proposed the first multi-view framework for self-supervised 3D medical image representation learning.
- Achieved performance comparable to state-of-the-art methods with substantially reduced training cost.
- Published in *MICCAI 2023* (Oral Presentation).

Advanced MRI Lab @ SJTU directed by Hongjiang Wei

Feb. 2022 – Jan. 2023

Internship Brain region segmentation and age estimation using QSM

- Developed a novel segmentation network for key brain regions on QSM images to support brain age estimation.
- Improved brain age prediction accuracy compared to prior T1-weighted MRI-based approaches.
- Published in *ISMRM 2023* and *IEEE Journal of Biomedical and Health Informatics (JBHI)*.

PUBLICATIONS

2026

Z Li¹, Y Wang¹, S Farsiu, P Kinahan. Boosting Medical Visual Understanding From Multi-Granular Language Learning. *The Fourteenth International Conference on Learning Representations (ICLR)*.

Y Wang, C He, LM Niziol, M Pawar, M Lu, MA Woodward, & S Farsiu. Large-Language-Model-Enhanced Multi-Modal Subtype Diagnosis of Microbial Keratitis on Slit-Lamp Photographs and Metadata. *Association for Research in Vision and Ophthalmology (ARVO) 2026 Annual Meeting*.

J Ong, MC Lu, C Thanitcul, M Pawar, JN Hart, EL Vogt, C Deng, S Farsiu, Y Wang, P Dmitriev, A Gupta. Deep Learning-Based Classification of Slit-Lamp Photograph Quality in Microbial Keratitis. *Ophthalmology Science*. 2026 Jan 21:101086.

2025

Z Li¹, Y Wang¹, S Farsiu, P Kinahan. Large scale data harmonization of radiology studies via multigranular vision language alignment. *SPIE Medical Imaging 2026*.

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.

2023

M Chen¹, Y Wang¹, Y Shi¹, 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 Wang¹, Z Li¹, J Mei¹, Z Wei¹, 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)*.

HONOR AND AWARDS

Oral Presentation at SPIE Medical Imaging 2026	Nov. 2025
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 Shanxinkghai Jiao Tong University	Oct. 2020

SERVICE

Conference Reviewer MICCAI 2025; MICCAI 2024;

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