

Zihao Zhao

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Education

ShanghaiTech University

Master Student of Computer Science and Technology
GPA: 3.78/4.0

Shanghai, China

Sep.2022–Present

Harbin Institute of Technology

Bachelor of Remote Sensing Science and Technology
GPA: 90.84/100; Rank 1/25

Harbin, China

Aug.2018–Jul.2022

Research Projects

Feb. 2023–Jan. 2024: Large Language Model as Diagnostic Agency

- Developed ChatCAD, utilizing LLMs to synthesize and interpret outputs from multiple CAD models, improving decision-making processes. Published in *Nature Communications Engineering*.
- Advanced the project through ChatCAD+, which adapts to diverse imaging domains and increases system reliability, currently under major revision.

Sep. 2022–Present: Eye-tracking Guided Computer-Aided Diagnosis

- Introduced the use of gaze data as a novel proxy for medical reports to address issues of false negatives in medical contrastive learning, with gaze similarity evaluation schemes tailored for various diagnostic scenarios. Accepted for publication at AAAI 2024.
- Proposed a novel data augmentation approach based on gaze heatmaps to maintain integrity of crucial visual cues in medical images, enhancing model robustness. The conference paper was accepted by the NeurIPS 2023 Workshop, and its extended journal version is under peer review.

Selected Paper

Google Scholar: <https://scholar.google.com/citations?user=Novd9cUAAAAJ>

- Z. Zhao, S. Wang, Q. Wang, and D. Shen, "Mining gaze for contrastive learning toward computer-assisted diagnosis", *Proceedings of the AAAI Conference on Artificial Intelligence*, 2024, 38(7): 7543–7551;
- Z. Zhao, S. Wang, J. Gu, Y. Zhu, L. Mei, Z. Zhuang, Z. Cui, Q. Wang, D. Shen. "ChatCAD+: Towards a Universal and Reliable Interactive CAD using LLMs", submitted to *IEEE Transactions on Medical Imaging* (**Major Revision**).
- Z. Zhao, Y. Liu, H. Wu, Y. Li, S. Wang, L. Teng, D. Liu, Z. Cui, Q. Wang, D. Shen. "CLIP in Medical Imaging: A Comprehensive Survey", submitted to *Medical Image Analysis* (**Major Revision**).
- S. Wang, Z. Zhao, X. Ouyang, T. Liu, Q. Wang, D. Shen. "ChatCAD: Interactive Computer-Aided Diagnosis on Medical Image using Large Language Models", *Nature Communications Engineering*, 2024, in press.
- S. Wang, Z. Zhao, L. Zhang, D. Shen, Q. Wang. "Crafting Good Views of Medical Images for Contrastive Learning via Expert-level Visual Attention", *NeurIPS 2023 Workshop Gaze Meets ML*, 2023, in press.
- Y. Zhu, Z. Shen, Z. Zhao, S. Wang, X. Wang, X. Zhao, D. Shen, Q. Wang. "MeLo: Low-rank Adaptation is Better than Fine-tuning for Medical Image Diagnosis", *IEEE 21th International Symposium on Biomedical Imaging*, 2024, in press.

Activities

Reviewer for:

- IEEE Transactions on Medical Imaging
- IEEE Journal of Biomedical and Health Informatics

Teaching assistant for:

- BME2106 Medical Big-Data and Artificial Intelligence, Spring 2024

Lab assistant for:

- Assist with the collection of EEG and eye-tracking data
- Demonstrate the functionalities of eye-tracking devices during campus open days