

XIAOMAN ZHANG

xiaoman-zhang.github.io
xm99sjtu@sjtu.edu.cn +86-17705651853

RESEARCH INTEREST

Artificial Intelligence for Healthcare, Multi-modal Representation Learning

EDUCATION

Shanghai Jiao Tong University

Sept. 2019 – Present

- Ph.D. in Information and Communication Engineering, Wu Honored Ph.D Class
- Advisors: Weidi Xie, Ya Zhang, Yanfeng Wang

University of Science and Technology of China

Sept. 2015 - July 2019

- B.S. in Electronic and Information Engineering, School of the Gifted Young

RESEARCH EXPERIENCE

Shanghai Artificial Intelligence Laboratory, Research Intern

Sept. 2019 – Present

Conducting research on multimodal representation learning, developing foundation model for healthcare.

- **Constructed three large-scale multimodal datasets.**
 - PMC-OA, a medical dataset with 1.65M image-text pairs, sourced from academic papers.
 - PMC-VQA, a medical dataset of 227k VQA pairs from 149k images, for instruction tuning.
 - MedMD, a medical dataset comprising 16M 2D and 3D images with textual descriptions.
- **Open-sourced three visual-language models.**
 - PMC-CLIP, a CLIP-style model trained on PMC-OA with contrastive learning.
 - MedVInT, a generative model with visual instruction tuning on PMC-VQA.
 - RadFM, a multimodal foundation model for radiology trained on MedMD.

PUBLICATIONS

* denotes equal contribution.

1. **Xiaoman Zhang**, Chaoyi Wu, Yanfeng Wang, Ya Zhang, Weidi Xie. “Knowledge-enhanced visual-language pre-training on chest radiology images”, *Nature Communications* (2023).
2. **Xiaoman Zhang**, Weidi Xie, Chaoqin Huang, Ya Zhang, Xin Chen, Qi Tian, and Yanfeng Wang. “Self-supervised tumor segmentation with sim2real adaptation”, *IEEE Journal of Biomedical and Health Informatics* (2023).
3. Chaoyi Wu*, **Xiaoman Zhang***, Yanfeng Wang, Ya Zhang, Weidi Xie. “K-Diag: Knowledge-enhanced disease diagnosis in radiographic imaging”, *In: Medical Image Computing and Computer Assisted Interventions Big Task Small Data Workshop* (2023).
4. Chaoyi Wu, **Xiaoman Zhang**, Yanfeng Wang, Ya Zhang, Weidi Xie. “MedKLIP: Medical knowledge-enhanced language-image pre-training in radiology”, *In: International Conference on Computer Vision* (2023).

5. Weixiong Lin*, Ziheng Zhao*, **Xiaoman Zhang**, Chaoyi Wu, Yanfeng Wang, Ya Zhang, Weidi Xie. “PMC-CLIP: Contrastive language-image pre-training using biomedical documents”, *In: Medical Image Computing and Computer Assisted Intervention* (2023).
6. **Xiaoman Zhang**, Shixiang Feng, Yuhang Zhou, Ya Zhang, and Yanfeng Wang. “SAR: Scale-aware restoration learning for 3d tumor segmentation”, *In: Medical Image Computing and Computer Assisted Intervention* (2021).

MANUSCRIPTS IN SUBMISSION/REVIEW

1. Chaoyi Wu*, **Xiaoman Zhang***, Ya Zhang, Yanfeng Wang, and Weidi Xie. “Toward generalist medical foundation model for radiology”, *arXiv:2308.02463*, (2023).
2. **Xiaoman Zhang***, Chaoyi Wu*, Ziheng Zhao, Weixiong Lin, Ya Zhang, Yanfeng Wang, and Weidi Xie. “PMC-VQA: Visual instruction tuning for medical visual question answering”, *arXiv:2305.10415*, (2023).
3. Chaoyi Wu*, Weixiong Lin*, **Xiaoman Zhang**, Ya Zhang, Yanfeng Wang, and Weidi Xie. “PMC-LLaMA: Towards building open-source language models for medicine”, *arXiv:2304.14454*, (2023).

INVITED TALKS

Knowledge-enhanced Medical Multi-modal Foundation Models <i>SyncedTech</i>	<i>July 2023</i>
Knowledge-enhanced Visual-language Pre-training on Chest Radiology Images <i>SenseTime Smart Health</i>	<i>June 2023</i>

HONORS AND AWARDS

Innovation Scholarship in School of the Gifted Young, USTC	2018
Cyrus Tang Scholarship, USTC	2015 – 2018
Sakura Science Plan, USTC	2017
The First Prize Scholarship, USTC	2016

REFEREES

Weidi Xie

Professor

Shanghai Jiao Tong University School & Oxford
weidi@sjtu.edu.cn

Ya Zhang

Professor

Shanghai Jiao Tong University School
ya_zhang@sjtu.edu.cn

Dinggang Shen

Professor

ShanghaiTech University
Shanghai United Imaging Intelligence Co.
dgshen@shanghaitech.edu.cn