Linkai Peng

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PERSONAL PROFILE

Ph.D. student at Northwestern University with a major in Electrical Engineering. Published four papers as the first author, one in MICCAI-OMIA 2021, one in ISBI 2022, one in MICCAI-MLMI 2022, and another in MICCAI-AIPAD 2024. Published one paper as the second author in MedIA. Looking to explore this field further.

Research Interests: Deep Learning, Computer Vision, Medical Image Analysis, Multi-modal Learning.

EDUCATION

09/2023 – Present ***Northwestern Univeristy***
Ph.D. in Electrical Engineering, advisor: Prof. Ulas Bagci

09/2019 – 06/2023 ***Southern University of Science and Technology***
B.Eng in Computer Science and Engineering, advisor: Prof. Xiaoying Tang

MAJOR PUBLICATIONS

2024 Zhang, Z., Keles, E., Durak, G., Taktak, Y., Susladkar, O., Gorade, V., ..., **Peng, L.**, ..., & Bagci, U. (2024). Large- Scale Multi-Center CT and MRI Segmentation of Pancreas with Deep Learning. arXiv preprint arXiv:2405.12367. (under review)

2024 **Peng, L.**, Zhang, Z., Durak, G., Miller, F. H., Medetalibeyoglu, A., Wallace, M. B., & Bagci, U. (2024). Optimizing Synthetic Data for Enhanced Pancreatic Tumor Segmentation. arXiv preprint arXiv:2407.19284. (accepted in **MICCAI-AIPAD** 2024)

2023 Lin, L., **Peng, L.**, He, H., Cheng, P., Wu, J., Wong, K. K., & Tang, X. (2023). YoloCurvSeg: You only label one noisy skeleton for vessel-style curvilinear structure segmentation. Medical Image Analysis, 90, 102937. (accepted in **MedIA**)

2022 **Peng, L.**, Lin, L., Cheng, P., He, H., & Tang, X. (2022, September). Student becomes decathlon master in retinal vessel segmentation via dual-teacher multi-target domain adaptation. In International Workshop on Machine Learning in Medical Imaging (pp. 32-42). Cham: Springer Nature Switzerland. (accepted in **MICCAI-MLMI** 2022)

2022 **Peng, L.**, Lin, L., Cheng, P., Huang, Z., & Tang, X. (2022, March). Unsupervised domain adaptation for cross-modality retinal vessel segmentation via disentangling representation style transfer and collaborative consistency learning. In 2022 IEEE 19th International Symposium on Biomedical Imaging (ISBI) (pp. 1-5). IEEE. (accepted in **ISBI** 2022)

2021 **Peng, L.**, Lin, L., Cheng, P., Wang, Z., & Tang, X. (2021). Fargo: A joint framework for faz and rv segmentation from octa images. In Ophthalmic Medical Image Analysis: 8th International Workshop, OMIA 2021, Held in Conjunction with MICCAI 2021, Strasbourg, France, September 27, 2021, Proceedings 8 (pp. 42-51). Springer International Publishing. (accepted in **MICCAI-OMIA** 2021)

RESEARCH EXPERIENCES

Pancreas Segmentation and Synthetic Data Optimization Chicago, USA
2023 - 2024

- Contributed to the large-scale multi-center research on CT and MRI segmentation of the pancreas. Integrating **linear self-attention**, the robustness and generalizability were increased.
- Optimized synthetic data generation using a **diffusion model** to enhance pancreatic tumor segmentation.

Ophthalmic Image Segmentation and Domain Adaptation Shenzhen, China
2021 - 2023

- Proposed a joint framework for **foveal avascular zone (FAZ)** and **retinal vessel (RV)** segmentation from OCTA images.
- Developed a domain adaptation network for **cross-modality** retinal vessel segmentation from OCTA and OCT images based on the proposed framework above.
- Extended the above work to a **multi-target domain adaptation** method for robust ophthalmic vessel segmentation across multiple domains.

RESEARCH GRANTS

12/2021 - 06/2023	Project member of 'Climbing Plan' Fund for Science and Technology Innovation: Transfer learning based image quality evaluation on OCTA images.
04/2021 - 04/2023	Project leader of Student's Platform for Innovation and Entrepreneurship Training Program: Intelligent diagnosis system for eye diseases based on OCTA images.

AWARDS & HONORS

11/2022	First Class of the Merit Student Scholarship in the academic year 2021 - 2022
11/2021	First Class of the Merit Student Scholarship in the academic year 2020 - 2021
11/2020	First Class of the Merit Student Scholarship in the academic year 2019 - 2020

PROGRAMMING & LANGUAGE SKILLS

Programming Skills

Python, MATLAB, Java, C++, PostgreSQL and Verilog.

SERVICES

09/2022 – 12/2022	Teaching Assistant for the course Object-oriented Analysis and Design
09/2022 – 12/2022	Teaching Assistant for the course Digital Logic
03/2021 – 06/2021	Teaching Assistant for the course Introduction to Computer Programming
09/2019 – 06/2023	Member of SUSTech Volunteer Association (SUVA)