Yongfan Lai

Peking University

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Homepage
Github

Education

- School of Information Science and Technology, Peking University 2029 (*expected*)
Ph.D. student in Artificial Intelligence, Advised by Prof. Hongyan Li

- School of Information Science and Technology, University of Science and Technology of China(USTC) 2024
B.E. in Artificial Intelligence, GPA: 4.0/4.3, Rank: 2/38

- Sanming No.2 Middle School 2020
High School, Rank: 1%

Publications

•**Yongfan Lai**, Jiabo Chen, Qinghao Zhao, Deyun Zhang, Yue Wang, Shijia Geng, Hongyan Li*, Shenda Hong*.
DiffuSETS: 12-Lead ECG generation conditioned on clinical text reports and patient-specific information,
Patterns (2025), https://doi.org/10.1016/j.patter.2025.101291. (Cell Press Journal, IF=7.4)

•**Yongfan Lai**, Bo Liu, Xinyan Guan, Qinghao Zhao, Hongyan Li, Shenda Hong*.
ECGTwin: Personalized ECG Generation Using Controllable Diffusion Model,
preprint at *arXiv* (2025), https://arxiv.org/abs/2508.02720.

Research Internship

•**Topic: Diffusion based ECG Modeling [Paper1] [Paper2]** *Nov. 2023 – Jul. 2025*
Supervised by prof. Shenda Hong
To address the insufficiency of real ECG data, we develop an ECG generation model conditioned on multiple cardiac conditions, along with a personalized version as an advanced extension. We demonstrate that both models can effectively enhance ECG diagnosis through data augmentation. Furthermore, we explore the potential of ECG generative models in supporting cardiology education and promoting knowledge discovery.

•**Topic: AI + CMR [Paper]** *Jan. 2023 – May. 2023*
Supervised by postdoc. Yan-Ran Wang
Developing a screening model (detect abnormality) and later a diagnosis model (classify into 11 heart diseases) based on multi-modality heart MRIs. Techniques including: *nnUNet* to extract Region Of Interest (ROI) and *Video Swin Tranformer (VST)* to perform classification.

Projects

•**Small Language Ensemble** *Jan 2025*
Project of course *Machine Learning* at Peking Univ., lectured by prof. Muhan Zhang **Github**

•**Recommanding Model for Clothing Size** *Jan 2023*
Project of course *Introduction to Machine Learning* at USTC, lectured by prof. Jei Wang **Github**

Skills Summary

- **Python**: Familiar with major machine learning and deep learning lib (*NumPy, PyTorch, Transformers*).
- **Linux**: Having the basic control of Linux & vim.
- **C/Assembly**: Having system level coding experience.
- **English Proficiency**: TOEFL iBT: 103, CET 6: 608

Main honors and awards

- **First prize of The Chinese Mathematics Competitions** Sep 2022
- **China National Scholarship** Sep 2023
- **Outstanding Graduates at USTC** Jun 2024

Self-Intro

I am a self-motived student with broad interests in AI-related field, where the combination of theoretical derivation and code implementation is typically highlighted. The content above can prove nothing but the diligence and earnest I retain, and I would utilize **the sufficient time and vigor of a Ph.D. student** to devote myself into future research.