



UNIVERSITY OF
LIVERPOOL

Zihong Luo

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EDUCATION

The University of Liverpool (UOL)

Currently studying Year 2

- Liverpool, UK

Bachelor of Computing Science

Expected June 2026

Xi'an Jiaotong-Liverpool University (XJTLU) Bachelor of Science in Information and Computing Science

GPA: 3.75 out of 4.0

Expected June 2024

- SuZhou, China
- The average score in the freshman year was 73
- The average score in the Second year was 76

EXPERIENCE

Multi-modal Deletion Completion of OCT and Fundus Medical Images

Mar-Aug 2024

Summer Research Assistant, Supervised by Professor Yanda Meng

University of Exeter

- Developed the experimental setup and implemented the core code for an Incomplete Modality Disentangled Representation strategy.
- Disentangled features into modal-common and modal-specific components using mutual information and designed a joint proxy learning module to reduce intra-modality redundancy, enhancing multimodal representations and recovering missing semantics.
- Validated the approach across four ophthalmology datasets, achieving significant improvement over state-of-the-art methods.

Interpretable Machine Learning Models for Detecting Peripheral Neuropathy and Lower Extremity Arterial Disease 2024

Research Contributor, Supervised by Professor Xiaoyun Xie

TUSM

- Developed machine learning models to predict diabetic peripheral neuropathy (DPN) and lower extremity arterial disease (LEAD).
- Performed data preprocessing and feature engineering to enhance model interpretability.
- Utilized SHAP values to identify critical shared and unique risk factors, aiding in diabetic foot ulcer (DFU) prevention.

A Deep Belief Network-Based Model for Modality Completion

Sep-Nov 2023

Research Assistant, Supervised by Professor Xiaobo Jin

XJTLU

- Developed a framework for handling incomplete multi-modal data using an encoder-decoder structure with attention fusion.
- Created two loss functions: one to improve the encoder's data completion accuracy and another to enhance data integration.
- Built an encoder-decoder model combining deep belief networks (DBNs) and attention mechanisms for better multi-modal data analysis.

A Multi-modal Time Series Analysis Model Based on Spiking Neural Network

Jun-Sep 2023

Research Assistant, Supervised by Professor Shuliang Zhao

XJTLU

- Developed a multi-modal pulse peak network for detecting heart rate anomalies.
- Integrated image and time series data to overcome limitations of single-modal approaches, achieving strong classification performance.
- Innovated the application of pulse peak networks in heart rate anomaly detection, enhancing speed and resource efficiency.

PROJECTS

- Incomplete Modality Disentangled Representation for Ophthalmic Disease Grading and Diagnosis** 2024
- Accepted by The 39th Annual AAAI Conference on Artificial Intelligence (**AAAI2025**)
 - Author List: Chengzhi Liu*, Zile Huang*, Feilong Tang, Yu Tian, Zhongxing Xu, **Zihong Luo**, Yalin Zheng, Yanda Meng
 - PDF: [OpenReview](#)
- ARIF: An Adaptive Attention-Based Cross-Modal Representation Integration Framework** 2024
- Accepted by International Conference on Artificial Neural Networks(**ICANN2024**)
 - Author List: Chengzhi Liu*, **Zihong Luo***, Yifei Bi*, Zile Huang, Dong Shu, Jiheng Hou, Hongchen Wang, Kaiyu Liang
 - PDF: [arXiv:2306.16950](#)
- MTSA-SNN: A Multi-modal Time Series Analysis Model Based on Spiking Neural Network** 2024
- Accepted by International Conference on Pattern Recognition (**ICPR2024**) Paper ID: 978
 - Author List: Chengzhi Liu*, **Zihong Luo***, Zheng Tao, Yitao Xu, Zile Huang
 - PDF: [arXiv:2402.05423](#)
- MC-DBN: A Deep Belief Network-Based Model for Modality Completion** 2024
- Accepted by International Conference on Pattern Recognition (**ICPR2024**) Paper ID: 982
 - Author List: **Zihong Luo***, Chengzhi Liu*, Zheng Tao, Heke Xin, Yitao Xu
 - PDF: [arXiv:2402.09782](#)
- Interpretable machine learning models for detecting peripheral neuropathy and lower extremity arterial disease in diabetics: an analysis of critical shared and unique risk factors** 2024
- Accepted by BMC Medical Informatics and Decision Making
 - Author List: Ya Wu, Danmeng Dong, Lijie Zhu, **Zihong Luo**, Yang Liu, Xiaoyun Xie
 - PDF: <https://link.springer.com/article/10.1186/s12911-024-02595-z>

TECHNICAL SKILLS

Languages

- Python, Java, C++, Latex

Developer Tools

- Pytorch, Jupyter, Matplotlib, sklearn

Operating Systems

- Windows, Linux

Awards

- Participated in the Biology Olympiad 2022, won the Provincial First and National Second Prizes