Mr. Li Pan

Email: lipan2@hku.hk **Web: https://peterlipan.github.io/** **GitHub**: https://github.com/peterlipan

EDUCATION

City University of Hong Kong, Hong Kong **GPA: 3.85 / 4.3 Rank: 1 / 59** 09/2020 - 10/2021
MSc in Multimedia Information Technology **(With Distinction)**

Xiamen University, China GPA: 2.17 / 4.0 | 70.59 / 100 09/2016 – 07/2020
BEng in Computer Science and Technology

AWARDS

1. **Best Paper Award** at The 21st ACM International Conference on Mobile Systems, Applications, and Services (1 out of 198 submissions, Certification available at this link.)
2. **Award classification of Distinction,** Department of Electrical Engineering, City University of Hong Kong. (1st out of 59 students, Certification available at this link.)
3. **Certification of attendance** at the 11th Hong Kong Pathology Forum, Department of Pathology, The University of Hong Kong.

PUBLICATIONS

Journal:

1. Yupei Zhang*, **Li Pan***, Qiushi Yang, Tan Li, Zhen Chen. Unified Multimodal Diagnostic Framework with Reconstruction Pre-training and Heterogeneity-Combat Tuning. (**IEEE JBHI**, **JCR Q1 TOP**, * equal contribution)
2. Ho, Lawrence Yuk Lung, **Li Pan**, Fei Meng, Kin Tung Michael Ho, Feiyang Liu, Ming-Tsung Wu, Hei I. Lei et al. Quantum modeling simulates nutrient effect of bioplastic polyhydroxyalkanoate (PHA) production in Pseudomonas putida. (Scientific Reports)
3. **Li Pan**, Yupei Zhang, Qiushi Yang, Tan Li, Zhen Chen. Long-tailed Medical Diagnosis with Relation-aware Representation Learning and Iterative Classifier Calibration. (**CIBM**, Major revision)
4. **Li Pan**, Jundong Liu, Mingqin Shi, Chi Wah Wong, and Kei Hang Katie Chan. Identifying autism spectrum disorder based on individual-aware down-sampling and multi-modal learning. (**MedIA**, Major revision)

Conference:

1. **Li Pan**, Yupei Zhang, Qiushi Yang, Tan Li, Xiaohan Xing, Zhen Chen. Focus on Focus: Focus-oriented Representation Learning and Multi-view Cross-modal Alignment for Glioma Grading. (**IEEE BIBM 2024**)
2. **Li Pan**, Yupei Zhang, Qiushi Yang, Tan Li, Zhen Chen. Combat Long-tails in Medical Classification with Relation-aware Consistency and Virtual Features Compensation. (**MICCAI 2023**, **early accepted**, 14%)
3. Zhiyuan Xie, Xiaomin Ouyang, **Li Pan**, Wenrui Lu, Guoliang Xing, and Xiaoming Liu. Mozart: A Mobile ToF System for Sensing in the Dark through Phase Manipulation. (**MobiSys 2023, Best Paper Award, 1/198**)
4. Ouyang, Xiaomin, Zhiyuan Xie, Heming Fu, Sitong Cheng, **Li Pan**, Neiwen Ling, Guoliang Xing, Jiayu Zhou, and Jianwei Huang. Harmony: Heterogeneous multi-modal federated learning through disentangled model training. (**MobiSys 2023)**
5. Xie, Zhiyuan, Xiaomin Ouyang, **Li Pan**, Wenrui Lu, Xiaoming Liu, and Guoliang Xing. HiToF: a ToF camera system for capturing high-resolution textures. (**MobiSys 2023**)
6. Ouyang, Xiaomin, Xian Shuai, Yang Li, **Li Pan**, Xifan Zhang, Heming Fu, Xinyan Wang et al. ADMarker: A Multi-Modal Federated Learning System for Monitoring Digital Biomarkers of Alzheimer's Disease. (**MobiCom 2024**)
7. Ho, L., **Pan, L.,** Hui, S., Vicera, C., Wu, M.T., Zhuang, H., Sun, Y., Lee, P.H. and Tan, G., 2023, June. Quantum Like Sys. for Phenotypic Switch in the Context of Industrial Bioplastic Synthesis. (American Society for Microbiology 2023)

RESEARCH EXPERIENCE

Multi-instance Learning on Whole Slide Images, Yale University (Remote) New Haven, US
Collaboration as the first author. June 2024 - Now

- Design a multi-modal cancer analysis framework
- Design a novel Multi-Instance Learning framework for Whole-Slide Images analysis.

Diagnosis of Endometrial Cancer Based on Deep Learning, Tongji University (Remote) Shanghai, China
Collaboration as a co-first author. Dec 2023 - Now

- Constructed the first histology slides dataset of Endometrial Cancer in China.
- Design a Multi-Instance Learning framework for Whole-Slide Images analysis.
- Propose a novel deep-learning pipeline for Endometrial Cancer analysis.

Multi-modal Glioma Grading, Sandford University (Remote) Stanford, US

Collaboration as the first author. Sep 2023 - Now

- Conducted research on the 5th WHO histology-molecular diagnosis and dataset for gliomas.
- Responsible for the design and development of the multi-modal glioma grading algorithm.
- Proposed an explainable multi-modal diagnosis framework for the glioma grading (Submitted to MICCAI 2024, as the first author)

Medical Image Analysis on Multi-modal Pre-training & Long-tailed Challenges Hong Kong

Collaboration as the first author. Nov 2022 – Jan 2024

- Proposed a unified multi-modal diagnosis framework for the medical multi-modal pre-training and the heterogeneity downstream tuning (**Published at IEEE JBHI,** as the first author).
- Proposed a relation-aware consistency and virtual features compensation framework to tackle the Long-tail challenges in the medical image classification task (**Published at MICCAI 2023,** as the first author).

Alzheimer's Disease Monitoring & Human Action Recognition, CUHK Hong Kong

Collaboration as a co-author. Aug 2021 – Oct 2023

- Details available at the project website.
- Designed a multi-sensor privacy-preserving data collection device to collect the daily activities of subjects.
- Deployed the devices for over 200 subjects across Hong Kong.
- Developed a novel sensing technique on smart phones and won the **Best Paper Award** at MobiSys 2023.
- Evaluated an online federated learning framework for AI-based assessment of the Alzheimer's Disease. (Three papers was accepted by MobiSys 2023 and One paper was accepted by MobiCom 2024)

AI Diagnosis of Autism Spectrum Disorders from fMRI Hong Kong

MSc dissertation, received an A- Feb 2021 – Aug 2021

- Proposed a novel deep-learning framework for diagnosing the Autism Spectrum Disorders from the resting state functional magnetic resonance imaging (rs-fMRI) which achieved the state-of-the art performance on the ABIDE datasets (**under review at MedIA**).

PROFESSIONAL EXPERIENCE

The University of Hong Kong Hong Kong

*Research Assistant (**Full-time**), **Department of Pathology, School of Clinical Medicine*** Dec 2023 – Now

- Design and develop multimodality deep learning models for diagnosis and prognosis of chondroid tumors.
- Multi-modal data processing, including clinical data, different medical images (X-ray, CT, MRI), and whole slide images of histology slides from different collaborative hospitals.
- Construct the world-first multi-modal dataset for sarcomas and pre-label the radiology and pathology images.

Embedded AI and IoT Lab, The Chinese University of Hong Kong Hong Kong

*Research Assistant (**Full-time**), **Department of Information Engineering*** Oct 2021 – Nov 2023

- Led the hardware components of the Alzheimer's Disease Monitoring project, which constructed the world-first real-world online healthcare system for the early diagnosis of the neurodegenerative diseases.
- Pre-processed and analyzed the collected over 1000 TB multimodal data.
- Developed the deep learning algorithms for two commercial AI-for-health products, including Chillaxbaby and Collie R1.
- Collected and organized two public video datasets for human action recognition.

Imperial College London Hong Kong

*Research Assistant (**Remote Part-time**)* Mar 2021 – Jul 2021

- Conducted gene differential expression analysis for Pseudomonas putida.
- Developed an open-source gene expression analysis tool (Source code available at this link).
- Developed a quantum machine learning algorithm with IBM Quantum Platform to predict the activation levels of the Bioplastic polyhydroxylalkanoate metabolism pathways.

OTHERS

English fluency: IELTS Academic overall 7.0 (Listening 7.0, Reading 8.5, Writing 6.0, Speaking 6.0)