

# Yupei Zhang

Email: [ypzhang5-c@my.cityu.edu.hk](mailto:ypzhang5-c@my.cityu.edu.hk)Web: <https://helenypzhang.github.io/>

Objective: 2024fall Ph.D.

## EDUCATION

**City University of Hong Kong (CityU)** GPA: 3.35 / 4.3 Hong Kong, Hong Kong  
*MSc Multimedia Info Technology (MSMIT1) – Electrical Engineering Department* Sep 2020 – Aug 2021  
 Related courses: Machine Learning, Digital Image Processing, Computer Graphics, Complex Network, etc.

**Beijing Language and Culture University (BLCU)** GPA: 3.55 / 4.0 | 86.9 / 100 Beijing, Beijing  
*Bachelor of Engineering in Digital Media Technology & Japanese Minor* Sep 2015 – Jun 2019  
 Related courses: C language, C++, Data Structure, Virtual Reality, Video and Audio Processing, Signal Processing etc.

### Honors/Awards:

- Interdisciplinary Contest in Modeling (2018): Honorable Mention (Administered by COMAP)
- **National Encouragement Scholarship (2018, 5%)**
- BLCU University-level Outstanding Student Leader (2018, 2%)
- BLCU Third Prize Scholarship (2017); BLCU Individual Scholarship (2016)

## PUBLICATION

### Journal:

1. **Yupei Zhang\***, Li Pan\*, Qiushi Yang, Tan Li, Zhen Chen. (2024). Unified Multi-modal Diagnostic Framework with Reconstruction Pre-training and Heterogeneity-combat Tuning. (**IEEE JBHI, JCR Q1 TOP**, \* equal contribution)
2. Li Pan\*, **Yupei Zhang\***, Qiushi Yang, Tan Li, Zhen Chen. (2024). Long-tailed Medical Diagnosis with Relation-aware Representation Learning and Iterative Classifier Calibration. (Under review, \* equal contribution)
3. Li, Z., **Zhang, Y.**, Xing, H., & Chan, K. L. (2023). Facial Micro-Expression Recognition Using Double-Stream 3D Convolutional Neural Network with Domain Adaptation. *Sensors*, 23(7), 3577. (Impact Factor: 3.9, **JCR Q1**)
4. **Zhang, Y. P.**, & Chan, K. L. (2021). Saliency detection with moving camera via background model completion. *Sensors*, 21(24), 8374. (Impact Factor: 3.9, **JCR Q1**)

### Conference:

1. **Yupei Zhang\***, Xiaofei Wang\*, Fangliangzi Meng, Jin Tang, Chao Li. Knowledge-driven Subspace Fusion and Gradient Coordination for Multi-modal Learning. (**MICCAI 2024, CCF-B**, \* equal contribution)
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%, **CCF-B**, \* equal contribution)
3. Li Pan\*, **Yupei Zhang\***, Qiushi Yang, Tan Li, Zhen Chen. Focus on Focus: Focus-oriented Representation Learning and Multi-view Cross-modal Alignment for Glioma Grading. (**IEEE BIBM 2024**, co-first author)
4. **Zhang, Y.** (2022, November). Research on Phoneme Recognition using Attention-based Methods. In Proceedings of the 2022 11th International Conference on Computing and Pattern Recognition (pp. 405-411). (ICCPR 2022 **Best oral presentation**, EI conference)

## PATENT

1. AN INTERACTIVE ELDERLY ASSISTANCE SYSTEM, HK30085199, as one of the inventors. July 2022

## RESEARCH EXPERIENCE

**Multi-modal Pan-Cancer Classification, Cambridge University** Hong Kong, Hong Kong  
*Collaboration as a co-first author* Sep 2023 – Now

- Conducted research on the 5th WHO histology-molecular diagnosis and dataset for Pan-Cancer.
- Responsible for the design and development of the multi-modal pan-cancer classification algorithm.

**Medical Image Analysis on Multi-modal Pre-training & Long-tailed Challenges** Hong Kong, Hong Kong  
*Collaboration as a co-first author* Nov 2022 – Now

- Proposed a unified multi-modal diagnosis framework for the medical multi-modal pre-training and the heterogeneity downstream tuning (**Published at IEEE JBHI**).
- 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**).

**Saliency detection with moving camera via background model completion, CityU** Hong Kong, Hong Kong  
*Dissertation project of MSc, which got an A- grade.* Feb 2021 – Aug 2021

- Background modeling, Background subtraction, Feedback mechanism and evaluation.

**Analysis of Automatic Landmarks Based on Signal Processing Methods, BLCU** Beijing, Beijing  
*Final year thesis of Bachelor, which won the university's excellent thesis.* Mar 2019 – May 2019

- Detected the landmarks of TIMIT corpus under Matlab environment based on prof. Sharlene A. Liu's signal processing method in *Landmark detection for distinctive feature-based speech recognition*.

- Conducted a comparison between signal processing and manually labelling phonemes in TIMIT corpus with Python to validate the feasibility of the signal processing method.

**Speech Acquisition and Intelligent Technology Lab (SAIT Lab), BLCU**

Beijing, Beijing

*Corpus research for helping learners effectively master Chinese phonetic skills; App*

Jul 2018 – Aug 2019

*project to help teachers effectively master international students' Chinese skills.*

- Self-taught and completed labeling of a corpus of second language learners with Praat efficiently.
- Self-taught HTML, CSS & Javascript within a week to optimize user interface of a Chinese learning app.
- Co-wrote and presented the article *Mispronunciation Detection Based on Extended Recognition Network of Initials and Finals Constraint* at the 13th Phonetic Conference of China (PCC 2018).

**PROFESSIONAL EXPERIENCE****The University of Hong Kong**

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.

**Centre for Intelligent Multidimensional Data Analysis Limited, InnoHK, CityU & Oxford**

Hong Kong, Hong Kong

*IT Officer (Full-time), R&D Group*

Feb 2023 – Nov 2023

- Spearheaded the design and development of two full-stack web projects utilizing Django, VUE.js, and Express.js.
- Directed a Cantonese voice changer initiative, from data collection to model training using RVC.
- Group leader of two music analysis projects, which included a karaoke feature and a music classification feature using Python.

*Research Assistant (Full-time), R&D Group*

Oct 2021 – Jan 2023

- Orchestrated a speech analysis project that encompassed speech-to-text and text-to-speech functionalities using the C++ SAPI library.
- Independently carried out the development of a pose estimation project using Flutter.
- Collaborated with a team of six to complete a motion capture project utilizing Xsens.

**Zhengzhou Enyu Electronic Technology Co., LTD**

Zhengzhou, Henan

*Implementation Engineer (Full-time), research and development Division*

Jul 2019 – Nov 2019

- Maintained the Edelweiss database and the PropertyCloud database daily; completed the exporting of orders' details, wage income sheet, and company income statement for 4 subsidiaries monthly using SQL.
- Completed 3 prototype projects using Mockplus, which have been integrated into 3 companies respectively.
- Self-taught and developed a mini program using the WeChat Developer Tool to show news on WeChat.

**JD.Com, Inc.**

Beijing, Beijing

*Technology Research & Development Product Manager (Intern), Y Division*

Jan 2018 – Mar 2018

- Designed training manuals for 3 enterprise supply chain products after online user surveys.
- Collected public information on other influential supply chain companies using Gartner rankings; Conducted an analysis and delivered 18 analytical reports, which were utilized by my team leader.

**LEADERSHIP EXPERIENCE****Junior Achievement China**

Beijing, Beijing

*Volunteer Leader, Black Sesame Alley Primary School Class*

Mar 2017 – Jul 2017

- Led a team of 5 volunteers to organize and carry out voluntary teaching activities at a local primary school for 11 visits, winning praise from teachers, students and the 'Excellent Volunteer' prize.

**"Mud Dog" Microfilm**

Zhoukou, Henan

*Director & Cinematographer.*

Mar 2017 – Apr 2017

- Organized 5-member team to travel to my hometown, Henan province, to make a microfilm about the mud dog, one of the national intangible cultural heritages of Henan Province, calling for people to protect and pass on intangible cultural heritages.
- This film was nominated for best cinematography in the BLCU microfilm contest.

**BLCU Public Service Station**

Beijing, Beijing

*Group Leader, Public Service Department*

Sep 2016 – Jul 2017

- Planned and hosted the first BLCU entrepreneurship competition; organized promotion online in conjunction with promotions on campus, attracting over 100 students to the competition.

- Edited WeChat articles written by junior students, chaired weekly brainstorming sessions, planned & delegated tasks & volunteering activities for the following weeks.

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#### **OTHERS**

**Skills:** C++, Pytorch, Pytorch-Lightning, Unity, SQL

**Activities:** BLCU Chinese and Foreign Student Art Troupe (member of News center & BLCU Choir), Chinese Undergraduate Computer Design Contest ('Excellent Volunteer')