

YINGJI FU

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EDUCATION

- **City University of Hong Kong (CityU)** Kowloon, Hong Kong SAR, China
Msc in Biomedical Engineering Sep 2023 -
- **Southern Medical University (SMU)** Guangzhou, Guangdong, China
Bachelor of Biomedical Engineering; GPA: 3.35/4.0 (Rank 7/35) Sep 2018 - July 2022

MAJOR COURSES AND RESEARCH INTERESTS

- **Major Courses:** Object-Oriented Programming in C++ (97), Computer Networks Principle and Application (94.3), Digital Image Processing (94.3); Data Structure (94), Concept and Application of Database (92.3), Data communication technology and Application (92.2), Programming .Net (89), Optimization Theory (87), Operating System Principles (85.5), etc.
- **Research Interests:** Medical Image Analysis, Deep Learning, Surgical Robotics, Neuroimaging and Brain Connectivity.

RESEARCH EXPERIENCE

- **Classification of Bowel Histopathology Images Using Deep Learning** Huang Lab, Nanfang Hospital (SMU)
Primary contributor June 2021 - July 2022
 - **Designed and optimized an advanced histopathology image classification system:**
 - Developed an advanced disease metric and extracted and scanned thousands of biopsy specimens.
 - Pre-processed the whole slide image (WSI) and conceived a classification system based on slide-level labels.
 - Utilized semi-supervised learning and pseudo-labelling techniques to address imbalanced label volume in the dataset.
 - Associated Transformer and multiple instance learning (MIL) to associate adjacent features between different instances.
 - ★ The presented model exhibits enhanced clinical interpretability and does not rely on large-scale datasets, resulting in 10% improvement over our previous model.
- **Multi-Spectral Interlaced Sparse Acquisition Photoacoustic Tomography** Qi Lab, SMU
Research Assistant April 2021 - July 2022
 - **Devised and improved an innovative technique for photoacoustic tomography:**
 - Combined interleaved sparse projections at different wavelengths to obtain a set of dense projections.
 - Reconstructed dense projections for high-quality images and guided the reconstruction of interleaved sparse projections.
 - Extracted individual images for each absorber by spectrally separating the reconstructed images using prior guidance.
 - ★ Our approach achieves superior image fidelity and spectral separation accuracy compared to traditional schemes while reducing the number of sensors required.

COMPETITION EXPERIENCE

- **The 9th "Teddy Cup" Data Mining Challenge**
Primary Author May 2021
 - **Rock classification and oil content estimation using deep learning:**
 - Resolved category imbalance through confidence learning and precise rock area estimation using contour detection.
 - Constructed a "Parallel Structure" model to extract and integrate global and local features from pre-processed images.
 - Conducted sliding window predictions on multiple regions of images and aggregated the results through hard voting.
 - ★ Integrated the models of different training strategies and achieved a desired goal with robust and accurate classification results.
- **Mathematical Contest in Modelling of SMU**
Primary Author Nov 2018
 - **Analysis of cost optimization strategies for floor installation considering various factors:**
 - Utilized mathematical expectation theory to accurately compute the minimum cost required for tile installation.
 - Employed a highly efficient greedy algorithm to effectively model and optimize the mixed laying scheme.
 - ★ Incorporated a comprehensive cost analysis framework to consider various factors such as tile types, sizes, and patterns, ensuring optimal utilization of resources while maintaining aesthetic appeal.

EXTRACURRICULAR ACTIVITIES

The 6 th National College Students Art Exhibition and Performance (National First Prize)

- *Chief of clarinet department* *May 2021*
 - As the clarinet department supervisor in the college orchestra, I demonstrated strong leadership skills by managing competition affairs and coordinating daily operations. I actively participated in musical instrument competitions and received multiple awards, showcasing my commitment to excellence. These experiences highlight my leadership abilities and collaborative nature.

SKILLS SUMMARY

- **Languages:** IELTS (6.5), CET-6 (515).
- **Programming Languages:** Experienced in Python; Comfortable with C/C++/MATLAB, etc.
- **Experimental Techniques and Methodologies:** Skilled in algorithms and data structures; Well-versed in Machine Learning and Deep Learning methodologies; Capable of independently devising and conducting experiments.

HONORS AND AWARDS

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|---|---------------------|
| • Outstanding Graduate of SMU | 2022 |
| • Outstanding Undergraduate Dissertation of SMU | 2022 |
| • Outstanding Campers of SMU's Summer Camp | 2021 |
| • Outstanding Student of SMU | 2019-2020/2020-2021 |
| • Third-Class Student Scholarship of SMU | 2019-2020/2020-2021 |

REFERENCES

Dr. Huang Bing

Professor

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