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.
    - Combined 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**:
    - Integrated 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

- 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

Teaching Experience

Jun.2021-Nov.2021	Teaching Assistant	Introduction to Artificial Intelligence

Work Experience

Jun.2021-Jun.2022	Research Assistant	Nanfang Hospital, Southern Medical University (SMU)
Sep.2022-Nov.2022	Software Engineering Intern	Mindray, Shenzhen

References

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