BOYUAN PENG

Phone: (+86) 13906328028 ⋄ Email: pengby1999@gmail.com

Homepage: xpeng1999.github.io

Google Scholar ⋄ Github ⋄ LinkedIn

EDUCATION

Tsinghua University (THU), China   *Sep 2022 - Jun 2025 (expected)*
M.S. in Biomedical Engineering, Advisor: Peiwu Qin
GPA: 3.8/4.0
Major courses: Medical Optical Instruments(3.6); Medical AI Technology and Practice(4.0); Medical Physics and Physical Therapy(4.0).

China University of Mining and Technology (CUMT), China   *Sep 2017 - Jun 2021*
B.E. in Electronic and Information Engineering
GPA: 3.2/5.0
Major courses: Signals and Linear Systems(96); Mobile Programming Technologies(91); Analog Electronic Technology(86).

PUBLICATIONS

1. **Boyuan Peng***, Jiaju Chen*, P. Bilha Githinji*, Ijaz Gul, et al. "Practical Guidelines for Cell Segmentation Models Under Optical Aberrations in Microscopy", *Computational and Structural Biotechnology Journal 2024*, * : equally contributed

2. Weinan Liu, **Boyuan Peng**, Xiaoyu Liu, et al. "Intelligent proximate analysis of coal based on near-infrared spectroscopy", *Journal of Applied Spectroscopy 2021*

PREPRINTS

1. Jiaming Deng*, Jiagi Yang*, **Boyuan Peng***, et al. "Diagnosis of Pediatric Pneumonia Using Explainable Convolutional Neural Networks (CNN)", *Quantitative Imaging in Medicine and Surgery* (under review)

RESEARCH EXPERIENCE

An Integrated Device for Fundus Imaging and Refractive Testing   Jun 2024 - Present
Research Assistant   Lishui Hospital of Zhejiang University
Supervised by: Dr. Chenying Lu   China

- Integrated a fundus camera and refractive measurement into one device, achieving efficient data acquisition.

- Developed an automatic focusing method that adapts to the user's refractive error, improving usability.

Benchmarking Cell Segmentation Models Under Aberrations   Dec 2023 - Aug 2024
Graduate Research Assistant   Tsinghua University
Supervised by: Peiwu Qin   China

- Proposed guidelines for using cell segmentation algorithms under optical aberrations, improving robustness evaluation.

- Developed a MobileNet-based network for predicting aberration labels in PSF images, achieving 84.03% precision.

A Mobile Application for Pediatric Pneumonia Diagnosis   Feb 2024 - Present
Graduate Research Assistant   Tsinghua University
Supervised by: Peiwu Qin   China

- Developed PneumoniaAPP for pediatric pneumonia diagnosis using CNN model, achieving 88.20% accuracy.

- Evaluated five CNN models and integrated CAM techniques for effective lung opacity localization.

Intelligent Analysing Coal Using Near-Infrared Spectroscopy   May 2019 - Jun 2020
Undergraduate Graduate Research Assistant   China University of Mining and Technology
Supervised by: Meng Lei   China

- Collected spectral data from 384 coal samples and correlated with moisture, volatile matter, and calorific value.

- Applied an optimized extreme learning machine for coal proximate analysis, improving prediction accuracy.

HONORS

Second-class School Scholarship, awarded by CUMT (Top 20%)	*2018 - 2019*
Second-class School Scholarship, awarded by CUMT (Top 20%)	*2017 - 2018*

SKILLS/HOBBIES

Technical	Optical System Design, Microscope Optical Analysis
Programming Tools	Python (Pytorch, Sklearn, Pandas, Numpy), Matlab
Hobbies	Swimming and Hiking