Hai Jiang

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https://github.com/pigejianghai

Education

09.2019–07.2022 **Master of Science in Computational Mathematics**, ***Nankai University (NKU)***, **China**

Thesis *GANs based Personal Style Imitation of Chinese Handwritten Characters.*

Advisors Prof. Yunhua Xue, Prof. Chunlin Wu

Related Courses Approximation Theory and Methods, Numerical Optimization, Convex Analysis, Variational Analysis, Real Analysis, Functional Analysis, Matrix Computation, Foundations of Measure Theory and Probability, Numerical Solutions of Partial Differential Equations, and more.

Cumulative GPA 3.06/4.00

09.2014–07.2018 **Bachelor of Engineering in Information Security**, ***Lanzhou University (LZU)***, **China**

Thesis *Improved Upper Bounds of Roman Domination Number in Maximal Outerplanar Graphs.*

Advisor Prof. Zepeng Li

Related Courses Discrete Mathematics, Operating Systems, Data Structures, C and C++ Programming Lab, Java Programming Lab, Database Theory and Lab, Computer Organization and Design, and more.

Cumulative GPA 4.15/5.00

Research Experience

11.2022–07.2024 **Research Assistant**, *Computational Medical Imaging Laboratory*
School of Computer Science and Engineering, Sun Yat-sen University, China

Project China Department of Science and Technology Key Grant, focused on Breast Cancer, aims to develop models with clinical interpretability and generalization.

Advisors Prof. Yao Lu, Dr. Ting Song

Task Focus Placenta Accreta Spectrum Disorders, T2-WI MRI, Prenatal Diagnosis, Multi-class classification.

Experience and Skills Literature research, data preprocessing, model building (programming), research paper writing.

Publication Submitted to ISBI 2025 and accepted: *"Anatomy-guided Multitask Learning for MRI-based Classification of Placenta Accreta Spectrum and its Subtypes."*

12.2023–01.2024 **Research Assistant**, *Computational Medical Imaging Laboratory*
School of Computer Science and Engineering, Sun Yat-sen University, China

Project National Natural Science Foundation of China, focused on Breast Cancer, aimed to develop a prediction model for the Chinese female population mainly with FFDM and US.

Advisors Prof. Yao Lu, Dr. Xiang Zhang

Task Focus Breast Cancer, Dual-Energy CT, Sentinel Lymph Nodes, Metestatic status, Multi-class classification.

Experience and Skills The first comprehensive research experience involved conducting literature reviews, designing experiments, writing research papers, and working with the TensorFlow and Keras frameworks.

Publication Submitted to MICCAI 2024 and revised for submission to the Journal of *Medical Physics*: *"DECT-Based Space-Squeeze Method for Multi-Class Classification of Metastatic Lymph Nodes in Breast Cancer."*

01.2022–06.2022 **Research Student**, *Image Analysis Team*
School of Mathematical Sciences, Nankai University, China

Task ADMM model from the manuscript *"Deep ADMM-Net for Compressed-Sensing MRI."*

Supervisors Prof. Chunlin Wu, Prof. Yunhua Xue

Focus Compressed-sensing Theory, Iterative Equations, Neural Networks, MRI reconstruction.

Experience and Skills The second programming experience involved proving mathematical equations and applying Deep Learning techniques. I reproduced the iterative mathematical equations using C++, Python, and PyTorch.

01.2021–04.2021 **Research Student**, *Image Analysis Team*
School of Mathematical Sciences, Nankai University, China

Task ROF-model from the manuscript *"Nonlinear Total Variation Based Noise Removal Algorithms."*

Supervisor Prof. Yunhua Xue

Focus Image Restoration, Denoise, PDE, Total-Variation Penalty.

Experience and Skills My initial project experience included proving mathematical equations and using both C++ and Python to develop the ROF model.

Other Work Experience

Funding

Proposal Writing Accepted; National Key Research and Development Program of China [No. 2023YFE0204300].

Report Writing Succeeded; Finished three Completion Reports and three Progress Reports; National Natural Science Foundation of China [No. 81971691, 12126610]; R&D Program of Pazhou Lab (Huangpu) [No. 2023K0606].

Specification

Patent 1 Patent Application Specification; under review.

Device 1 Medical Device Application Specification; succeeded.

Teaching Experience

Courses Calculus; Mathematical Analysis

Thesis *Breast Cancer Classification Method Based on Dual-Energy CT Images*

Language Proficiency

Mandarin Native

English Professional Level: IELTS 6.5; CET6 476/710; CET4 544/710

Cantonese Intermediate

Skills

Technical Python, PyTorch, Tensorflow + Keras, LaTeX, Git, C/C++, MATLAB

GitHub repository `https://github.com/pigejianghai/projects`

Other Linux (Ubuntu), Microsoft Office, Adobe Photoshop

Interest

Artificial Intelligence, Mathematics, Physics

Awards

2014 – 2018 Four-time recipient of the Third-Class Merit Scholarship for Academic Excellence at LZU.

2019 – 2022 Three-time recipient of the Third-Class Merit Scholarship for Academic Excellence at NKU.

References

Prof. Yunhua Xue

Associate Professor in Computational Mathematics at Nankai University

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Prof. Yao Lu
Professor of Medical Image Analysis at Sun Yat-sen University
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E-mail luyao23@mail.sysu.edu.cn

Publications

[1] **Hai Jiang** et. al. "Anatomy-Guided Multitask Learning for MRI-Based Classification of Placenta Accreta Spectrum and Its Subtypes." *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2025.

[2] Jiawei Pan, Zilong He, Yue Li, Weixiong Zeng, Yaya Guo, Lixuan Jia and **Hai Jiang** et. al. "Atypical architectural distortion detection in digital breast tomosynthesis: a multi-view computer-aided detection model with ipsilateral learning." *Physics in Medicine & Biology* 68, no. 23 (2023): 235006.