Hai Jiang

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https://github.com/pigejianghai

Education

09.2019–07.2022 **Master of Science**, *Computational Mathematics*, School of Mathematical Sciences
Nankai University (NKU), Project **985** & **211**, Tianjin, China

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

- Developed an end-to-end CycleGAN framework to replicate calligraphic styles, achieving 85% visual similarity (10% improvement over baselines).
- Skills: GANs, data preprocessing, style-transfer learning, Python, PyTorch.

Advisors Prof. Yunhua Xue, Prof. Chunlin Wu

Related Courses Approximation Theory, Numerical Optimization, Convex Analysis, Functional Analysis, Matrix Computation, Numerical PDEs.

Cumulative GPA 3.06/4.00

09.2014–07.2018 **Bachelor of Engineering**, *Information Security*, Schoold of Information Science and Engineering
Lanzhou University (LZU), Project **985** & **211**, Gansu, China

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

- Focused on graph theory and combinatorial optimization.

Advisor Prof. Zepeng Li

Related Courses Discrete Mathematics, Data Structures, Operating Systems, C/C++ Programming, Database Theory.

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 Placenta Accreta Spectrum Disorder Classification

- Developed a multi-task learning model using T2-WI MRI images, achieving **AUC of 0.80**.
- Published: *"Anatomy-Guided Multitask Learning for MRI-Based Classification of Placenta Accreta Spectrum and Its Subtypes"* (Accepted at ISBI 2025).

Skills Literature review, data preprocessing, model building (PyTorch), research writing.

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

Project Breast Cancer Metastasis Prediction

- Designed a CNN-based system using dual-energy CT scans to predict metastasis in Sentinel Lymph Nodes, achieving **AUC of 0.85** (cross-validation).
- Manuscript submitted to MICCAI 2024 and under revision for Journal of Medical Physics.

Skills Experimental design, TensorFlow, Keras, data analysis, research writing.

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

Project ADMM Model for Compressed-Sensing MRI

- Reproduced iterative mathematical equations from *"Deep ADMM-Net for Compressed-Sensing MRI"* using C++, Python, and PyTorch.

Skills Compressed-sensing theory, neural networks, MRI reconstruction.

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

Project ROF Model for Image Denoising

- Implemented the ROF model from *"Nonlinear Total Variation Based Noise Removal Algorithms"* using C++ and Python.

Skills Image restoration, PDEs, total-variation penalty.

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.

Technical Skills

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

Tools Linux (Ubuntu), Microsoft Office, Adobe Photoshop

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

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.

Language Proficiency

Mandarin Native

English Professional (IELTS 6.5, CET6 476/710, CET4 544/710)

Cantonese Intermediate

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*

Interest

Artificial Intelligence, Mathematics, Medical Image Analysis, Physics

References

Prof. Yunhua Xue

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