

## PERSONAL INFORMATION

### Hai Jiang

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Gender Male | Date of birth 21 December 1997 | Nationality Chinese

## JOB APPLIED FOR Ph. D

### EDUCATION

September 2019–July 2022	<b>Master of Science in Computational Mathematics</b> <span>M. Sc.</span>
	Nankai University (NKU, Project 985 & 211, Double First-Class), Tianjin, China
Thesis	GANs-Based Personal Style Imitation of Chinese Handwritten Characters. Developed an end-to-end CycleGAN framework achieving 85% visual similarity (10% improvement over baselines).
Key Skills	GANs, style-transfer learning, Python, PyTorch, data pre-processing.
Supervisors	Prof. Yunhua Xue, Prof. Chunlin Wu.
Relevant Coursework	Approximation Theory, Numerical Optimization, Functional Analysis, Matrix Computation, Numerical PDEs.
GPA	3.06/4.00.
September 2014–July 2018	<b>Bachelor of Engineering in Information Security</b> <span>B. Eng.</span>
	Lanzhou University (LZU, Project 985 & 211, Double First-Class), Lanzhou, Gansu, China
Thesis	Improved Upper Bounds of Roman Domination Number in Maximal Outer planar Graphs. Focused on graph theory and combinatorial optimization.
Supervisor	Prof. Zepeng Li.
Relevant Coursework	Discrete Mathematics, Data Structures, Operating Systems, C/C++ Programming, Database Theory.
GPA	4.15/5.00.

### RESEARCH EXPERIENCE

November 2022–July 2024	<b>Computational Medical Imaging Laboratory</b> <span>R. A.</span>
	School of Computer Science and Engineering, Sun Yat-sen University
Project	Placenta Accreta Spectrum Disorder Classification. <ul style="list-style-type: none"><li>– Developed a prior-knowledge-based deep learning approach for classifying PASD (binary classification task), achieving AUC of 0.9902.</li><li>– Developed a multi-task learning model using T2-WI MRI images (multi-class classification task), achieving AUC of 0.80.</li><li>– Published: “Anatomy-Guided Multitask Learning for MRI-Based Classification of Placenta Accreta Spectrum and Its Subtypes” [1].</li></ul>
Skills	Literature review, data preprocessing, PyTorch, research writing.

December 2023–January 2024	<b>Computational Medical Imaging Laboratory</b> School of Computer Science and Engineering, Sun Yat-sen University	R. A.
Project	Breast Cancer Metastasis Prediction. – Designed a CNN-based framework using dual-energy CT scans to predict metastasis. – Achieved AUC of 0.85 (averaged-score in cross-validation). – Manuscript submitted to MICCAI 2024 and under revision for Journal of Medical Physics.	
Skills	TensorFlow, Keras, data analysis, experimental design, research writing.	
January 2022–June 2022	<b>Image Analysis Team</b> School of Mathematical Sciences, Nankai University	
Project	ADMM Model for Compressive-Sensing MRI. – Reproduced iterative mathematical equations from Deep ADMM-Net for Compressive-Sensing MRI using C++, Python, and PyTorch.	
Skills	Compressive-sensing theory, neural networks, MRI reconstruction.	

## PUBLICATIONS

- [1] **Hai Jiang**, Qiongtong Liu, Yuanpin Zhou, Jiawei Pan, Ting Song, and Yao Lu. "Anatomy-Guided Multitask Learning for MRI-Based Classification of Placenta Accreta Spectrum and its Subtypes". In: *2025 IEEE 22nd International Symposium on Biomedical Imaging (ISBI)*. 2025, pp. 1–5.
- [2] Jiawei Pan, Zilong He, Yue Li, Weixiong Zeng, Yaya Guo, Lixuan Jia, **Hai Jiang**, Weiguo Chen, and Yao Lu. "Atypical architectural distortion detection in digital breast tomosynthesis: a multi-view computer-aided detection model with ipsilateral learning". In: *Physics in Medicine & Biology* 68.23 (2023), p. 235006.
- [3] XueFang Wang, **Hai Jiang**, Ruxu Du, Yong Zhong, and Yao Lu. "Anatomical-Prior-Based Multiscale Segmentation of Cardiac Substructures Using Enhanced Skip-Connections and a Triple-View Fusion Network." In: *Submitting ()*.
- [4] **Hai Jiang**, Chushan Zheng, Jiawei Pan, Yuanpin Zhou, Qiongtong Liu, Xiang Zhang, Jun Shen, and Yao Lu. *DECT-based Space-Squeeze Method for Multi-Class Classification of Metastatic Lymph Nodes in Breast Cancer*. 2025. arXiv: 2505.17528 [eess.IV]. URL: <https://arxiv.org/abs/2505.17528>.
- [5] Jiawei Pan, Zilong He, Yue Li, Weixiong Zeng, Yaya Guo, Lixuan Jia, **Hai Jiang**, Weiguo Chen, and Yao Lu. "Multi-view Architectural Distortion Detection with Confidence Boosting in Digital Breast Tomosynthesis". In: *Submitted to MICCAI (in rebuttal)*.
- [6] Qiongtong Liu, **Hai Jiang**, Ting Song, and Yao Lu. "Clinical prior-knowledge-based deep learning approach for the diagnosis of placenta accreta spectrum". In: *On-going ()*.

## TECHNICAL SKILLS

Programming	Python, PyTorch, TensorFlow, Keras, C/C++, MATLAB, LaTeX, Git.
Tools & Platforms	Linux (Ubuntu), Microsoft Office, Adobe Photoshop.
Research Methods	Deep learning, Image processing, Medical imaging, Compressive sensing.

## AWARDS &amp; SCHOLARSHIP

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.

## FUNDING &amp; PATENT WORK

Funding Proposal Writing	Contributed to National Key R&D Program of China [No. 2023YFE0204300].
Report Writing	Completed three Completion & Progress Reports for National Natural Science Foundation of China [No. 81971691, 12126610] and R&D Program of Pazhou Lab [No. 2023K0606].
Patent Work	1 patent application under review.

Medical Device Specification    Successfully completed 1 medical device application.

## TEACHING EXPERIENCE

Courses Taught    Calculus, Mathematical Analysis.  
 Thesis Supervision    Breast Cancer Classification Method Based on Dual-Energy CT Images.

## RESEARCH INTEREST

Artificial Intelligence, Deep Learning (CNNs, GNNs).  
 Mathematics, Medical Image Analysis, Physics.

## REFERENCES

- Yunhua Xue**    Associate Professor, Computational Mathematics, Nankai University  
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 address: 94 Weijin Road, Nankai District, and Tianjin, China.
- Yao Lu**    Professor, Medical Image Analysis, Sun Yat-sen University  
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 address: Xingang West Road, Haizhu District, and Guangzhou, China.
- Yuanpin Zhou**    Postdoctoral Researcher, Medical Image Analysis, Zhejiang University  
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