JIXIN MA

Email: majx@stu.hit.edu.cn Mob: (+86) 18804548698 Website: https://jixin-ma.github.io/
Address: No. 92 West Dazhi Street, Nan Gang District, Harbin, Heilongjiang Province, China

EDUCATION

Harbin Institute of Technology (HIT), Harbin, China Aug.2022 - Present

- Master of Engineering in Mechanical Engineering
- Supervisor: *Prof. Zhijiang Du* GPA: 91.03/100 Rank: 21/371

Harbin Institute of Technology (HIT), Harbin, China Sept.2019 - Jun.2022

- Minor in Artificial Intelligence
- Supervisor: *Prof. Qince Li*

Harbin Institute of Technology (HIT), Harbin, China Aug.2018 - Jun.2022

- Bachelor of Engineering in Mechatronics Engineering
- Supervisor: *Prof. Zhijiang Du* GPA: 94.58/100 Rank: 2/135

PUBLICATIONS

[1] MRI Super-Resolution via Hybrid Information Enhancement Network based on Multi-Attention and Adaptive Convolution.
Jixin Ma*, Hongjian Yu*, Zhijiang Du, Xin Hua, Zibo Li, and Hui Zhao.
2024 IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2024, Accepted)

[2] Multi kernel cross sparse graph attention convolutional neural network for brain magnetic resonance imaging super-resolution. *[Paper]*
Xin Hua, Zhijiang Du, **Jixin Ma**, Hongjian Yu
Biomedical Signal Processing and Control, 2024, 96: 106444.

[3] A Lightweight Multi-scale Multi-angle Dynamic Interactive Transformer-CNN Fusion Model for 3D Medical Image Segmentation.
Xin Hua, Hongjian Yu, Zhijiang Du, **Jixin Ma**, Fanjun Zheng, Chen Zhang, Qiaohui Lu, Hui Zhao
Neurocomputing (Accepted)

PREPRINTS

[1] DFAN: Dual-Frequency Aware Network for 3D MRI Super-Resolution.
Jixin Ma*, Hongjian Yu*, Zhijiang Du, Xin Hua, Zibo Li, and Hui Zhao.
The 39th Annual AAAI Conference on Artificial Intelligence (AAAI 2025, under review)

[2] WSC-Trans: A CNN-Transformer Structure-based 3D Multi-structural Automatic Segmentation Model For Temporal Bone CT.
Xin Hua*, **Jixin Ma***, Hongjian Yu, Zhijiang Du, Fanjun Zheng, Chen Zhang, et al.

RESEARCH EXPERIENCES

Medical Image Super-Resolution Algorithm based on Deep Learning Oct.2022 - Present
State Key Laboratory of Robotics and Systems, HIT Supervisor: Prof. *Zhijiang Du*

- Propose a multi frequency super-resolution network based on CNN and Transformer for 3D MRI volume super-resolution.
- Propose a hybrid information enhanced network based on Transformer for 2D MRI super-resolution.
- Conduct experiments on two public MRI datasets and achieve *SOTA* results.

Robot-Assisted Cochlear Implant Planning and Navigation System Oct.2021 - Jun.2022

State Key Laboratory of Robotics and Systems, HIT Supervisor: *Prof. Zhijiang Du*

- Develop a robot-assisted cochlear implant planning and navigation software based on C++, VTK (the Visualization Toolkit) and Qt.
- Achieve software functions such as medical image visualization, interaction, 3D reconstruction, cochlear implant channel drilling process demonstration and ICP registration.
- Conduct drilling experiments using the cochlear implant robot guided by the designed software to verify its feasibility and accuracy

Bronchus Segmentation Method based on Deep Learning Oct.2021 - Jun.2022

Research Center of Perception and Computing, HIT Supervisor: *Prof. Qince Li*

- Proposed an improved network based on V-Net for accurate and efficient bronchus segmentation.
- Training and hyperparameter tuning on two public bronchus datasets.

PROJECT EXPERIENCES

Vision-Based Garbage Classification Detection System Sept.2021 - May.2022

Engineering Innovation Practice Center, HIT Advisor: *Prof. Feng Zhang*

- Train YOLOv5 on a self-collected and hand-labeled dataset of garbage images.
- Deploy the trained model on the Jetson Nano using TensorRT to achieve real-time garbage detection.

Curling Robot Visual Grasping Sept.2022 - Nov.2022

Institute for Artificial Intelligence, HIT Advisor: *Prof. Jing Jin*

- Establish communication between Kinova Robotic Arm and ROS system on Jetson TX2.
- Complete the hand-eye calibration of the Kinova robot arm and the RealSense D435i camera based on the Eye-in-hand method.
- Achieve the curling grasping of Kinova robot arm based on depth information.

AWARDS AND HONORS

- National Scholarship for Bachelor Students (2019)
- Outstanding Student Model at Harbin Institute of Technology(2019)
- National Scholarship for Bachelor Students (2020)
- Outstanding Graduate at Harbin Institute of Technology (2022)
- National Scholarship for Master Students (2023)
- Third Prize in the 19th China Postgraduate Mathematical Contest in Modeling (2023)

SKILLS AND OTHERS

Tools/Frameworks: Matlab, Solidworks, AutoCAD, Qt, Origin, VTK, ROS

Programming: Python, C++, Pytorch, LATEX

Interests: Tennis, Table Tennis, Figure Skating and Photography.