Zihao Chen

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Education

Shanghai Jiao Tong University (SJTU), Shanghai, China
Candidate for B.Eng. in Biomedical Engineering, Zhiyuan Honors Program Sep. 2018 - present

- GPA: 91/100; Rank: 2/72
- **Selected courses:** Advanced Medical Imaging and Intelligent Navigation(A+), Artificial Intelligence and Medical Engineering (A), Machine Learning for Biomedical Signal Processing(A), Biomedical Image Processing (A+), Mechanisms and Control of Medical Robotics (A)

Experience

Shanghai Artificial Intelligence Laboratory, Shanghai, China
Reasearch Intern, remotely supervised by Prof. Qi Dou July 2021 - present

- Develop algorithms for detection and segmentation of cerebral microbleeds in MRI.

Institute of Medical Robotics, SJTU, Shanghai, China
Undergraduate Research Assistant, supervised by Prof. Guoyan Zheng Nov. 2020 - June 2021

- Reproduced several methods for 3D reconstruction of knee bones from multi-planar X-ray images, including U-Net like reconstruction network and patient-specific deep network.
- Built a statistical deformable model of femur and incorporated the shape prior information into deep learning based registration framework. The proposed method achieved 0.94 average Dice score, while it had less parameters and much smoother deformation field.
- Established a deep learning based unsupervised joint affine and deformable registration framework for femur and pelvis registration, achieving 0.96 and 0.92 Dice performance.

Med-X Research Institute, SJTU, Shanghai, China
Undergraduate Research Assistant, supervised by Prof. Xiaohua Qian July 2019 - Oct. 2020

- Implemented and improved a kernel penalized SVM based feature selection model to predict transition from mild cognitive impairment to Alzheimer's disease in 3 years, achieving 0.82 balanced accuracy.
- Developed feature selection models based on prior knowledge for identifying DNA methylation biomarkers in Alzheimer's disease.
- Designed a uniform spiral transformation method for pancreatic cancer segmentation, applying 3D contextual information in a 2D network. The proposed segmentation framework achieved a state-of-the-art 0.65 Dice performance.

Publication

[3] DeepASDM: a Deep Learning Framework for Affine and Deformable Image Registration Incorporating a Statistical Deformation Model
Xiaoru Gao, Jeroen Van Houtte, **Zihao Chen**, and Guoyan Zheng.
IEEE EMBS International Conference on Biomedical and Health Informatics (BHI), 2021

[2] An End-to-end Unsupervised Affine and Deformable Registration Framework for Multi-structure Medical Image Registration
Zihao Chen, Xiaoru Gao, and Guoyan Zheng
International Congress and Exhibition of Computer Assisted Radiology and Surgery (CARS), 2021 [Abstract]

[1] Model-driven Deep Learning Method for Pancreatic Cancer Segmentation Based on Spiral-transformation
Xiahan Chen, **Zihao Chen**, Jun Li, Yu-Dong Zhang, Xiaozhu Lin, and Xiaohua Qian
IEEE Transactions on Medical Imaging (**TMI**), 2021

Technical Skills

Programming: Python, Matlab, R, C++, Assembly Language
Tools: Pytorch, Latex, Git