

Jishuai He

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EDUCATION

School of Medicine, Tsinghua University

Beijing, CN

M.S. in Biomedical Engineering, GPA: 3.82/4.00 (3 / 21)

Sep 2018 - Jun 2021

College of Medicine and Biological Information Engineering, Northeastern University

Shenyang, CN

B.E. in Biomedical Engineering, GPA: 3.85/4.00 (5 / 138)

Sep 2015 - Jun 2018

PUBLICATIONS

* indicates equal contribution

1. Huang K.*, Liao J.*, **He J.***, et al. A real-time augmented reality device integrated with artificial intelligence for skin tumor surgery. 2022.
2. Yao, C., **He, J.***, et al. Feature pyramid self-attention network for respiratory motion prediction in ultrasound image guided surgery. International Journal of Computer Assisted Radiology and Surgery, 2022
3. **He, J.**, et al. FPSN-FNCC: an accurate and fast motion tracking algorithm in 3D ultrasound for image-guided interventions. Physics in Medicine & Biology, 2021.
4. Huang, Y., **He, J.***, et al. Tracking 3D ultrasound anatomical landmarks via three orthogonal plane based scale discriminative correlation filter network. Medical Physics, 2021
5. **He, J.**, et al. Siamese spatial pyramid matching network with location prior for anatomical landmark tracking in 3-Dimension ultrasound sequence. In Chinese Conference on Pattern Recognition and Computer Vision, 2019.
6. Shen, C., **He, J.**, et al. Discriminative correlation filter network for robust landmark tracking in ultrasound guided intervention. In International Conference on Medical Image Computing and Computer-Assisted Intervention (Oral), 2019

RESEARCH EXPERIENCE (SELECTED)

The Development of the Skin Tumor Surgery Navigation system

Jul 2021 – present

Junior Researcher at Tencent AI lab

- Developed the skin tumor segmentation algorithm based on MLP-based model. Compared to UNet, on clinical image, the above algorithm achieved the improvement of 0.1 in term of Dice.
- Developed the automatic surgery planning algorithms to help surgeons design surgical margins and sampling grids.
- Developed the control software of the navigation system and deployed above algorithms to the software.

Anatomical Objects Tracking and Segmentation in 2D/3D Ultrasound Sequence

Oct 2018 - Jun 2021

M.S. student at Tsinghua University, advised by Prof. Jian Wu

- Coupled the SPP and the MatchNet and firstly introduced the deep network into 3D Ultrasound (US) landmark tracking.
- Proposed the 3D US landmark tracking algorithm based on Siamese network and normalized cross correlation (SiamNCC) and achieved the most accurate tracking performance in the [CLUST](#) dataset (The first anonymous

participant in results of 3D point-landmark tracking). In this approach, a fast NCC (FNCC) was proposed, which could reduce the computation and improve the tracking speed.

- Introduced the FPN into SiamNCC and further improved the network's tracking speed.
- Introduced scale DCFNet into 3D US landmark tracking based on triplanar transformation.

Anatomical Landmark Motion Prediction based on Time Series

Feb 2020 - Jun 2021

M.S. student at Tsinghua University, advised by Prof. Jian Wu

- Collected 2D/3D target motion time series data from hospital.
- Utilized TCN and transformer to forecasting the motion of the anatomical targets.

Construction, Feature Extraction and Analysis of Brain Function Network

Mar 2017 - Mar 2018

B.E. student at NEU, worked with Prof. Yueyang Teng

- Collected MRI data from ADNI database and used DPABI to preprocess data
- Used the convolutional auto-encoder and SVM to diagnose Alzheimer's disease, based on Functional MRI images.

EMPLOYMENT

AI Lab, Tencent

Shenzhen, CN

Junior Researcher

Jul 2021 - Present

SKILLS

Programming: Python, C/C++

Frameworks & Tools: Pytorch, Keras, Tensorflow, MATLAB

SCHOLARSHIPS AND AWARDS

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|---|-----------|
| - Comprehensive excellent second class scholarship of Tsinghua University Shenzhen Graduate School, Tsinghua University | 2018-2019 |
| - Outstanding student cadres of Northeast University | 2018 |
| - Second class scholarship of Northeast University, Northeastern University | 2015-2016 |
| - Neusoft scholarship, Northeastern University | 2015-2016 |