

# Zeju Li

Ph.D. Student at Imperial College London

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## Research Interests

### Medical Image Computing, Computer Vision and Machine Learning

Primary area    📌 Generalization in Deep Learning for Medical Imaging.  
Secondary area    📌 Meta Learning, Data Augmentation, Image Segmentation, Image Restoration.

## Research Experience

- Sep 18 – . . . .    📌 **Research Assistant.** Department of Computing, Imperial College London.  
Advisor: Dr. Ben Glocker and Prof. Daniel Rueckert  
He is working on improving the generalization capability of neural networks for medical imaging.
- Jul 19 – . . . .    📌 **Research Intern.** Noah's Ark Lab, Huawei.  
Mentor: Dr. Greg Slabaugh  
He is working on low-level video processing based on network architecture search.
- Jul 18 – Sep 18    📌 **Research Intern.** Institute of Computing Technology, Chinese Academy of Sciences.  
Mentor: Prof. Shaohua Kevin Zhou and Prof. Hu Han  
He worked on embedding CT knowledge in the chest X-ray based diagnosis.
- Jun 14 – Jun 18    📌 **Research Assistant.** Department of Electronic Engineering, Fudan University  
Advisor: Prof. Yuanyuan Wang and Prof Jinhua Yu  
He worked on brain MR image analysis including tumor segmentation, image reconstruction and disease classification.  
He also worked on compressing ultrasound signal.

## Education

- 2018 – . . . .    📌 **Ph.D. Computing, Imperial College London, United Kingdom.**
- 2015 – 2018    📌 **M.Sc. Biomedical Engineering, Fudan University, China.**  
Thesis title: *Deep learning based MR images analysis of glioma and its clinical applications.*
- 2011 – 2015    📌 **B.Sc. Electronic Engineering, Fudan University, China.**  
Thesis title: *Fourier domain ultrasound beamforming.*

## Research Publications

### Refereed Journal Articles

- ① Li, Z., Yu, J., Wang, Y., Zhou, H., Yang, H., & Qiao, Z. (n.d.). Deepvolume: brain structure and spatial connection-aware network for brain mri super-resolution. *IEEE Transactions on Cybernetics*.

- 2 Gu, J., Li, Z., Wang, Y., Yang, H., Qiao, Z., & Yu, J. (2019). Deep generative adversarial networks for thinsection infant mr image reconstruction. *IEEE Access*.
- 3 Zhou, Z., Wang, Y., Yu, J., Guo, W., & Li, Z. (2019). Super-resolution reconstruction of plane-wave ultrasound image based on a multi-angle parallel u-net with maxout unit and novel loss function. *Journal of Medical Imaging and Health Informatics*.
- 4 Chen, Y., Li, Z., Wu, G., Yu, J., Wang, Y., Lv, X., ... Chen, Z. (2018). Primary central nervous system lymphoma and glioblastoma differentiation based on conventional magnetic resonance imaging by high-throughput sift features. *International Journal of Neuroscience*.
- 5 Li, Z., Wang, Y., Yu, J., Guo, Y., & Cao, W. (2017). Deep learning based radiomics (dlr) and its usage in noninvasive idh1 prediction for low grade glioma. *Scientific Reports*.
- 6 Li, Z., Wang, Y., Yu, J., Guo, Y., & Zhang, Q. (2017). Age groups related glioblastoma study based on radiomics approach. *Computer Assisted Surgery*.
- 7 Li, Z., Wang, Y., Yu, J., Shi, Z., Guo, Y., Chen, L., & Mao, Y. (2017). Low-grade glioma segmentation based on cnn with fully connected crf. *Journal of Healthcare Engineering*.
- 8 Yu, J., Shi, Z., Lian, Y., Li, Z., Liu, T., Gao, Y., ... Mao, Y. (2017). Noninvasive idh1 mutation estimation based on a quantitative radiomics approach for grade ii glioma. *European Radiology*.

## Refereed Conference Proceedings

- 1 Li, Z., Kamnitsas, K., & Glocker, B. (2019). Overfitting of neural nets under class imbalance: analysis and improvements for segmentation. In *International conference on medical image computing and computer-assisted intervention (miccai 2019)*.
- 2 Li, Z., Li, H., Han, H., Shi, G., Wang, J., & Zhou, S. K. (2019). Encoding ct anatomy knowledge for unpaired chest x-ray image decomposition. In *International conference on medical image computing and computer-assisted intervention (miccai 2019)*.
- 3 Li, X., Wang, Y., Yan, W., Van der Geest, R. J., Li, Z., & Tao, Q. (2018). A multi-scope convolutional neural network for automatic left ventricle segmentation from magnetic resonance images: deep-learning at multiple scopes. In *2018 11th international congress on image and signal processing, biomedical engineering and informatics (cisp-bmei 2018)*.
- 4 Yan, W., Wang, Y., Li, Z., van der Geest, R. J., & Tao, Q. (2018). Left ventricle segmentation via optical-flow-net from short-axis cine mri: preserving the temporal coherence of cardiac motion. In *International conference on medical image computing and computer-assisted intervention (miccai 2018)*.
- 5 Li, Z., Wang, Y., & Yu, J. (2017a). Brain tumor segmentation using an adversarial network. In *International miccai brainlesion workshop (miccai-brainlesion 2017)*.
- 6 Li, Z., Wang, Y., & Yu, J. (2017b). Reconstruction of thin-slice medical images using generative adversarial network. In *International workshop on machine learning in medical imaging (miccai-mlmi 2017)*.







## Skills

Languages	English, Mandarin Chinese.
Coding	Python, Matlab, R, C/C++.
Machine Learning	Pytorch, Tensorflow, MatConvNet.


## Miscellaneous Experiences

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### Awards and Achievements

- 2018     Winner of Huawei UK AI challenge.
-  CSC Imperial Scholarship.
-  Outstanding Graduate of Shanghai.
-  National Scholarship.
- 2017     CSC-IBM Scholarship.
- 2016     Intel Fellowship.

### Journal Reviewer

-  Neurocomputing; IEEE Access.

### Teaching

- Fudan     Circuit Laboratory; Signal Processing.
- Imperial     Computer Vision; Graphics.

## References


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### Ben Glocker

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### Yuanyuan Wang

Professor

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