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 Student.** Department of Computing, Imperial College London, London, United Kingdom.
Supervisor: 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, London, United Kingdom.
Supervisor: Dr. Greg Slabaugh and Dr. Liang Chen
He is working on low-level image processing based on AutoML.

Jul 18 – Sep 18   🔖 **Research Intern.** Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China.
Supervisor: Prof. Shaohua Kevin Zhou and Dr. Hu Han
He worked on embedding CT knowledge in the chest X-ray based diagnosis.

Jun 14 – Jun 18   🔖 **Research Student.** Department of Electronic Engineering, Fudan University, Shanghai, China.
Supervisor: 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 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*.

2. **Li, Z.**, Yu, J., Wang, Y., Zhou, H., Yang, H., & Qiao, Z. (2019). Deepvolume: brain structure and spatial connection-aware network for brain mri super-resolution. *IEEE Transactions on Cybernetics*.

3. Wu, G., Lin, J., Chen, X., **Li, Z.**, Wang, Y., Zhao, J., & Yu, J. (2019). Early identification of ischemic stroke in noncontrast computed tomography. *Biomedical Signal Processing and Control*.

4. 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*.

5. 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*.

6. Wu, G., **Li, Z.**, Wang, Y., Yu, J., Chen, Y., & Chen, Z. (2018). Primary central nervous system lymphoma and glioblastoma image differentiation based on sparse representation system. *Journal of Biomedical Engineering*.

7. **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*.

8. **Li, Z.**, Wang, Y., Yu, J., Guo, Y., & Zhang, Q. (2017). Age groups related glioblastoma study based on radiomics approach. *Computer Assisted Surgery*.

9. **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*.

10. 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

Awards and Achievements

2019	🔖	MICCAI 2019 Graduate Student Travel Award.
2018	🔖	Winner of Huawei UK AI chanllege.
	🔖	CSC Imperial Scholarship.
	🔖	Outstanding Graduate of Shanghai.
	🔖	National Scholarship.
2017	🔖	CSC–IBM Scholarship.
2016	🔖	Intel Fellowship.

Journal Reviewer

🔖 Neurocomputing; IEEE Access; Computer Methods and Programs in Biomedicine.

Volunteer

🔖 MIDL 2019.

Teaching

Imperial	🔖	Mathematics for Machine Learning; omputer Vision; Graphics.
Fudan	🔖	Circuit Laboratory; Signal Processing.

References

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