Ziyu Li

Wellcome Centre for Integrative Neuroimaging (WIN),
FMRIB, John Radcliffe Hospital, Oxford, OX3 9DU, UK
ziyu.li@ndcn.ox.ac.uk
https://www.ndcn.ox.ac.uk/team/ziyu-li

Educations and Research Experiences

Doctor of Philosophy (DPhil/Ph.D.) **Oct 2021 - Mar 2025 (expected)**
Wellcome Centre for Integrative Neuroimaging, FMRIB, Nuffield Department of Clinical Neurosciences, University of Oxford

Advisors: Wenchuan Wu, Ph.D.; Karla L. Miller, Ph.D.
Thesis: Ultrafast high-fidelity 3D diffusion magnetic resonance imaging

Research Assistant **Mar 2020 - Oct 2021**
Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School
Supervisors: Qiyuan Tian, Ph.D.; Susie Y. Huang, M.D., Ph.D.

Bachelor of Engineering (with distinction) **Sept 2017 - June 2021**
Department of Biomedical Engineering, Tsinghua University

Bachelor of Management **Sept 2018 - June 2021**
School of Economics and Management, Tsinghua University

Awards and Honors

- Academic Grant (total awarded: £650), Exeter College, University of Oxford 2022, 2023
- Educational Stipend, International Society for Magnetic Resonance in Medicine (ISMRM) 2021, 2022, 2023
- Departmental Funding (full funding for DPhil study), Nuffield Department of Clinical Neurosciences, University of Oxford 2021
- Outstanding Graduates of Tsinghua University, Tsinghua University (Top 2% in university) 2021
- Outstanding Graduates of Beijing, Beijing Municipal Administration Committee 2021
- Outstanding Undergraduate Thesis of Beijing, Beijing Municipal Administration Committee (Top 1 in department) 2021
- Magna Cum Laude Merit Award, ISMRM 2021
- SenseTime Scholarship (awarded: $3000), SenseTime 2020
- National Scholarship, Ministry of Education of P.R. China 2019, 2020
- Seed-Funding for Student's Academic Research (total awarded: $6000), Tsinghua University 2019, 2020

Publications

Journal Articles

- **Li Z**, Miller KL, Andersson JLR, Zhang J, Liu S, Guo H, Wu W. Sampling strategies and integrated reconstruction for reducing distortion and boundary slice aliasing in high-resolution 3D diffusion MRI. *Magnetic Resonance in Medicine*, 2023; 90(4), 1484-1501. https://doi.org/10.1002/mrm.29741
  GitHub: https://github.com/liziyu0929/distortion-free-3d-diffusion-mri

- **Li Z**, Fan Q, Bilgic B, Wang G, Wu W, Polimeni JR, Miller KL, Huang SY, Tian Q. Diffusion MRI data analysis assisted by deep learning synthesized anatomical images (DeepAnat). *Medical Image Analysis*, 2023; 86, 102744. https://doi.org/10.1016/j.media.2023.102744
  GitHub: https://github.com/liziyu0929/DeepAnat
- **Li Z**, Tian Q, Ngamsombat C, Cartmell S, Conklin J, Filho ALMG, Lo W, Wang G, Ying K, Setsompop K, Fan Q, Bilgic B, Cauley S, Huang SY. High-fidelity fast volumetric brain MRI using synergistic wave-controlled aliasing in parallel imaging and a hybrid denoising generative adversarial network (HDnGAN). *Medical Physics*, 2022; 49(2), 1000-1014. https://doi.org/10.1002/mp.15427
  GitHub: https://github.com/liziyu0929/HDnGAN
- Dong Y, Koolstra K, **Li Z**, Riedel M, van Osch MJP, Börnert P. Structured low-rank reconstruction for navigator-free water/fat separated multi-shot diffusion-weighted EPI. *Magnetic Resonance in Medicine*, 2023. https://doi.org/10.1002/mrm.29848
- Tian Q, **Li Z**, Fan Q, Polimeni JR, Bilgic B, Salat D, Huang SY. SDnDTI: Self-supervised deep learning-based denoising for diffusion tensor MRI. *NeuroImage*, 2022; 253, 119033. https://doi.org/10.1016/j.neuroimage.2022.119033
  GitHub: https://github.com/qiyuantian/SDnDTI
- Zhang X, Yang J, Li J, Li W, Song D, Lu XA, Wu F, Li J, Chen D, Li X, Xu Z, Liu S, **Li Z**, Ying K, Lu P. Factors associated with treatment response to CD19 CAR-T therapy among a large cohort of B cell acute lymphoblastic leukemia. *Cancer Immunology, Immunotherapy*, 2022; 71(3), 689-703. https://doi.org/10.1007/s00262-021-03009-z

Preprints

- Zhang J, Liu S, Dai E, Shao X, **Li Z**, Miller KL, Wu W, Guo H. Hybrid-space reconstruction with add-on distortion correction for simultaneous multi-slab diffusion MRI. 2023; arXiv preprint arXiv:2303.16442. https://arxiv.org/abs/2303.16442
- Avci MY, **Li Z**, Fan Q, Huang SY, Bilgic B, Tian Q. Quantifying the uncertainty of neural networks using Monte Carlo dropout for deep learning based quantitative MRI. 2021; arXiv preprint arXiv:2112.01587. https://arxiv.org/abs/2112.01587
- Tian Q, **Li Z**, Fan Q, Ngamsombat C, Hu Y, Liao C, Wang F, Setsompop K, Polimeni JR, Bilgic B, Huang SY. SRDTI: Deep learning-based super-resolution for diffusion tensor MRI. 2021; arXiv preprint arXiv:2102.09069. https://arxiv.org/abs/2102.09069

Selected Conference Proceedings

- **Li Z**, Chen X, Chiew M, Miller KL, Wu W. Self-navigated high-resolution 3D diffusion MRI using an extended blipped-CAIPI sampling and structured low-rank reconstruction. The Annual Meeting of ISMRM, Toronto, 2023. *(Digital Poster)*
- **Li Z**, Miller KL, Wu W. Elimination of distortion and slice-aliasing in 3D diffusion MRI by integrating multiple sampling strategies into reconstruction. ISMRM Diffusion Workshop, Amsterdam, 2022. *(Oral Presentation)*
- **Li Z**, Fan Q, Bilgic B, Wang G, Wu W, Polimeni JR, Miller KL, Huang SY, Tian Q. Improved co-registration of diffusion and T1-weighted MRI data assisted by deep learning-based image synthesis. ISMRM Diffusion Workshop, Amsterdam, 2022. *(Scientific Poster)*
- **Li Z**, Fan Q, Bilgic B, Wang G, Polimeni JR, Huang SY, Tian Q. Diffusion MRI Data Analysis using Brain Segmentation from Anatomical Images Synthesized from Diffusion Data by Deep Learning (DeepAnat). The Annual Meeting of ISMRM, London, 2022. *(Oral Presentation)*
- **Li Z**, Miller KL, Wu W. Integration of blip reversal with CAIPI sampling enables simultaneous correction of slice aliasing and distortion in 3D multi-slab diffusion MRI. The Annual Meeting of ISMRM, London, 2022. *(Oral Power Pitch)*
- **Li Z**, Tian Q, Ngamsombat C, Cartmell S, Conklin J, Filho ALMG, Lo W, Wang G, Ying K, Setsompop K, Fan Q, Bilgic B, Cauley S, Huang SY. HDnGAN: High-fidelity ultrafast volumetric brain MRI using a hybrid denoising generative adversarial network. The Annual Meeting of ISMRM, Virtual Conference, 2021. *(Oral*

Presentation, Magna Cum Laude Merit Award)

- **Li Z**, Tian Q, Ngamsombat C, Bilgic B, Fan Q, Huang SY. High-fidelity super-resolution diffusion tensor imaging using deep learning. The Annual Meeting of Radiological Society of North America (RSNA), Virtual Conference, 2020. *(Oral Presentation)*
- **Li Z**, Tian Q, Ngamsombat C, Bilgic B, Fan Q, Ying K, Huang SY. Synergistic super-resolution brain MRI and tissue segmentation using multitask deep learning. The Annual Meeting of RSNA, Virtual Conference, 2020. *(Digital Poster)*

Invited Talks

- **Exploring Generative Adversarial Networks (GANs) in MRI: Applications and Limitations**

  Oxford Centre for Clinical Magnetic Resonance Research, University of Oxford, 2023

- **Unraveling Brain Microstructure: Advancing Diffusion MRI from Acquisition to Analysis**

  Institute for Medical Imaging Technology, Ruijin Hospital, Shanghai Jiao Tong University, 2023

- **Advancing Diffusion MRI Acquisition, Reconstruction, and Analysis for Improved Microstructural Mapping**

  Center for Biomedical Imaging Research, Tsinghua University, 2023

Teaching and Outreach

MRI Graduate Programme, Wellcome Centre for Integrative Neuroimaging, University of Oxford

- Tutor for Fast Imaging (Michaelmas 2023), Advanced Graduate Lecture Series (Introduction to Convolutional Neural Network) (Hilary 2023)
- Teaching Assistant for Image Formation (Michaelmas 2023), Fast Imaging (Michaelmas 2022)
- Author of Motion Artifact Tutorial, Introduction to Convolution Neural Network Tutorial

African Brain Data Network

- Tutor for MR Image Formation Practical, African Brain Data Science Academy 2023

Oxford Global

- Stream Leader for Computer Science, Global Summit for Young Leaders 2023

Academic Services

- **Journal Reviewer**
  IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, IEEE Access

Skills

- **Programming**
  Python (Tensorflow, Keras, PyTorch), MATLAB, C, C++, R, Verilog, Arduino, LaTeX
- **MRI Sequence Programming**
  Pulseq, Siemens VE
- **Language**
  Chinese (native), English (fluent)