LIN CHEN

Postdoctoral Fellow • Johns Hopkins University

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BIOGRAPHICAL SKETCH

Dr. Chen received his B.S., M.S. and Ph.D. degrees from Xiamen University. His dissertation focused on spatiotemporally encoded (SPEN) single-shot MRI and chemical exchange saturation transfer (CEST) MRI. During his Ph.D. program, he joined Peter van Zijl's group as Visiting Student at Johns Hopkins University School of Medicine. After completing Ph.D. program, he joined Johns Hopkins University as a postdoctoral fellow in 2018. His current interest is developing new methods for CEST MRI.

EDUCATION

Postdoctoral Fellow

Mentor: Peter C.M. van Zijl

2018 – Present — Johns Hopkins University

Visiting Student

Mentor: Peter C.M. van Zijl

2015-2017 — Johns Hopkins University

Ph.D. in Electromagnetic Field and Microwave Technology

Mentor: Shuhui Cai

2014-2017 — Xiamen University

Thesis: "Novel methods for spatiotemporally encoded single-shot MRI and chemical exchange saturation transfer MRI"

M.S. in Electronics and Communication Engineering

Mentor: Shuhui Cai

2011-2014 — Xiamen University

Thesis: "Super-resolved reconstruction of spatiotemporally encoded single-shot ultrafast MRI"

B.S. in Electronic Information Science and Technology

Graduated Summa Cum Laude

2007-2011 — Xiamen University

HONORS & AWARDS

- 2019 ISMRM Summa Cum Laude Merit Award
- 2019 OCSMRM Young Investigator Award
- 2018 First Prize of the 13th Excellent Academic Paper of Natural Science in Fujian Province
- 2016 National Scholarship for Graduate Students
- 2016, 2015, 2014 ISMRM Educational Stipend
- 2015 ISMAR Best Poster Award
- 2014, 2013, 2012, 2010, 2009 Xiamen University Merit Student
- 2011 Xiamen University Outstanding Student Leader

SKILLS

- MRI, Matlab, C, Bruker Programming, Philips Programming, Tensorflow, Python

JOURNAL PUBLICATIONS

1. **Chen L**, Schar M, Chan KWY, Huang J, Wei Z, Lu H, Qin Q, Weiss R, van Zijl P, Xu J. In vivo imaging of phosphocreatine with artificial neural networks. **Nature Communications** 2020.
2. **Chen L**, Wei Z, Chan KWY, Cai S, Liu G, Lu H, Wong PC, van Zijl PCM, Li T, Xu J. Protein aggregation linked to Alzheimer's disease revealed by saturation transfer MRI. **NeuroImage** 2019;188:380-390.
3. **Chen L**, Wei Z, Cai S, Li Y, Liu G, Lu H, Weiss RG, van Zijl PCM, Xu J. High-resolution creatine mapping of mouse brain at 11.7 T using non-steady-state chemical exchange saturation transfer. **NMR Biomed** 2019:e4168.
4. **Chen L**, Barker PB, Weiss RG, van Zijl PCM, Xu J. Creatine and phosphocreatine mapping of mouse skeletal muscle by a polynomial and Lorentzian line-shape fitting CEST method. **Magn Reson Med** 2019;81(1):69-78.
5. **Chen L**, Xu X, Zeng H, Chan KWY, Yadav N, Cai S, Schunke KJ, Faraday N, van Zijl PCM, Xu J. Separating fast and slow exchange transfer and magnetization transfer using off-resonance variable-delay multiple-pulse (VDMP) MRI. **Magn Reson Med** 2018;80(4):1568-1576. **(Editor's Pick)**
6. **Chen L**, Zeng H, Xu X, Yadav NN, Cai S, Puts NA, Barker PB, Li T, Weiss RG, van Zijl PCM, Xu J. Investigation of the contribution of total creatine to the CEST Z-spectrum of brain using a knockout mouse model. **NMR Biomed** 2017;30(12):e3834.
7. **Chen L**, Huang J, Zhang T, Li J, Cai C, Cai S. Variable density sampling and non-Cartesian super-resolved reconstruction for spatiotemporally encoded single-shot MRI. **J Magn Reson** 2016;272:1-9. **(Cover Article)**
8. **Chen L**, Li J, Zhang M, Cai S, Zhang T, Cai C, Chen Z. Super-resolved enhancing and edge deghosting (SEED) for spatiotemporally encoded single-shot MRI. **Med Image Anal** 2015;23(1):1-14.
9. **Chen L**, Bao L, Li J, Cai S, Cai C, Chen Z. An aliasing artifacts reducing approach with random undersampling for spatiotemporally encoded single-shot MRI. **J Magn Reson** 2013;237:115-124.
10. Zhou Y, van Zijl PCM, Xu X, Xu J, Li Y, **Chen L**, Yadav NN. Magnetic resonance imaging of glycogen using its magnetic coupling with water. **Proc Natl Acad Sci U S A** 2020.
11. Xu X, Xu J, Chan KWY, Liu J, Liu H, Li Y, **Chen L**, Liu G, van Zijl PCM. GlucoCEST imaging with on-resonance variable delay multiple pulse (onVDMP) MRI. **Magn Reson Med** 2019;81(1):47-56.
12. Wei Z, **Chen L**, Lin Z, Jiang D, Xu J, Liu P, van Zijl PCM, Lu H. Optimization of phase-contrast MRI for the estimation of global cerebral blood flow of mice at 11.7T. **Magn Reson Med** 2019;81(4):2566-2575.
13. Wei Z, Xu J, Liu P, **Chen L**, Li W, van Zijl PCM, Lu H. Quantitative assessment of cerebral venous blood T2 in mouse at 11.7T: Implementation, optimization, and age effect. **Magn Reson Med** 2018;80(2):521-528.
14. Ren P, Li B, Dong S, **Chen L**, Zhang Y. The reliability of nonlinear least-squares algorithm for data analysis of neural response activity during sinusoidal rotational stimulation in semicircular canal neurons. **PLoS One**. 132018. p e0190596.
15. Luo Y, Zhang J, **Chen L**, Cai S, Cai C. Accelerating multi-slice spatiotemporally encoded MRI with simultaneous echo refocusing. **J Magn Reson** 2018;296:12-22.
16. Ye Q, **Chen L**, Qiu W, Lin L, Sun H, Cai S, Wei Z, Chen Z. Accelerating two-dimensional nuclear magnetic resonance correlation spectroscopy via selective coherence transfer. **J Chem Phys** 2017;146(1):014202.
17. Huang J, Zhang M, Lu J, Cai C, **Chen L**, Cai S. A fast chemical exchange saturation transfer imaging scheme based on single-shot spatiotemporal encoding. **Magn Reson Med** 2017;77(5):1786-1796.
18. Zhang T, **Chen L**, Huang J, Li J, Cai S, Cai C, Chen Z. Ultrafast multi-slice spatiotemporally encoded MRI with slice-selective dimension segmented. **J Magn Reson** 2016;269:138-145.
19. Wei ZL, Yang J, Chen YH, **Chen L**, Cao SH, Cai SH, Lin YQ, Chen Z. Ultrafast multidimensional nuclear magnetic resonance technique: A proof of concept based on inverse-k-space for convenient and efficient performance. **Appl Phys Lett** 2016;108(8):084102.
20. Li A-H, Lü M, Yang J, **Chen L**, Cui X, Sun Z. Upconversion-luminescent magnetic dual-functional sub-20-nm core-shell SrF2 : Yb, Tm@ CaF2: Gd heteronanoparticles. **Dalton Transactions** 2016;45:5800-5807.
21. Li J, Zhang M, **Chen L**, Cai C, Sun H, Cai S. Reduced field-of-view imaging for single-shot MRI with an amplitude-modulated chirp pulse excitation and Fourier transform reconstruction. **Magn Reson Imaging** 2015;33(5):503-515.
22. Li J, **Chen L**, Cai S, Cai C, Zhong J, Chen Z. Imaging with referenceless distortion correction and flexible regions of interest using single-shot biaxial spatiotemporally encoded MRI. **NeuroImage** 2015;105(1):93-111.
23. Li J, Cai CB, **Chen L**, Chen Y, Qu XB, Cai SH. Flexible reduced field of view magnetic resonance imaging based on single-shot spatiotemporally encoded technique. **Chinese Physics B** 2015;24(10):108703.
24. Chen Y, Li J, Qu X, **Chen L**, Cai C, Cai S, Zhong J, Chen Z. Partial Fourier transform reconstruction for single-shot MRI with linear frequency-swept excitation. **Magn Reson Med** 2013;69(5):1326-1336.

CONFERENCE ABSTRACTS

1. **Chen L**, Schär M, Chan KWY, Huang J, Qin Q, Weiss RG, van Zijl PCM, Xu J. High-resolution phosphocreatine mapping of human skeletal muscle by artificial neural network-based chemical exchange saturation transfer MRI at 3T. ISMRM 27th Annual Meeting Exhibition, Montreal, 11-16 May 2019. **(Summa Cum Laude Merit Award)**

2. **Chen L**, Barker PB, Weiss RG, van Zijl PCM, Xu J. Creatine and phosphocreatine mapping of mouse skeletal muscle by a polynomial and Lorentzian line-shape fitting CEST method. ISMRM 27th Annual Meeting Exhibition, Montreal, 11-16 May 2019.
3. **Chen L**, Wei Z, Xu X, Li Y, Cai S, Liu G, Lu H, Barker PB, Weiss RG, van Zijl PCM, Xu J. High-resolution total Creatine mapping of the mouse brain at 11.7T using CEST ISMRM 26th Annual Meeting Exhibition, Paris, 16-21 June 2018.
4. **Chen L**, Wei Z, Chan KWY, Cai S, Liu G, Lu H, Wong PC, van Zijl PCM, Li T, Xu J. Protein Aggregation in Mouse Brain with Alzheimer's Disease Revealed by Saturation Transfer MRI. ISMRM 26th Annual Meeting Exhibition, Paris, 16-21 June 2018.
5. **Chen L**, Xu X, Zeng H, Chan KWY, Yadav N, Cai S, Schunke KJ, Faraday N, van Zijl PCM, Xu J. Separating out Fast and Slow Chemical Exchange Using Off-resonance Variable Delay Multiple Pulse (VDMP) ISMRM 25th Annual Meeting Exhibition, Honolulu, 22-27 April 2017.
6. **Chen L**, Cai SH, Cai CB, Chen Z. Variable density spiral sampling and reconstruction for spatiotemporally encoded single-shot MRI. ISMRM 24th Annual Meeting Exhibition, Singapore, 07-13 May 2016.
7. **Chen L**, Cai SH, Cai CB, Chen Z. Super-resolved enhancing and edge deghosting for spatiotemporally encoded single-shot MRI. ISMRM 23rd Annual Meeting Exhibition, Toronto, Ontario, Canada, 30 May-5 June 2015.
8. **Chen L**, Cai CB, Cai SH, Chen Z. Accelerating MRI by quadratic phase encoding. ISMRM 23rd Annual Meeting Exhibition, Toronto, Ontario, Canada, 30 May-5 June 2015.
9. **Chen L**, Cai SH, Cai CB. Spiral Sampling for Spatiotemporally Encoded Single-Shot MRI. International Society of Magnetic Resonance, Shanghai, China, 16-21 August 2015. **(Best Poster Award)**
10. **Chen L**, Cai C, Cai S, Chen Z. An artifacts reducing approach for fat-water separation in spatiotemporally encoded single-shot MRI. ISMRM 22nd Annual Meeting Exhibition, Milan, Italy, 10 - 16 May 2014.

PATENTS

1. Cai SH, **Chen L**, Li J, Huang JP, Zhang T, Cai CB. Variable density sampling and non-Cartesian super-resolved reconstruction for spatiotemporally encoded single-shot MRI. China Patent, No. ZL201510269980.X.
2. Cai SH, Li J, Cai CB, **Chen L**, Chen Z. Flexible reduced field of view magnetic resonance imaging based on single-shot spatiotemporally encoded technique. China Patent, No. ZL201410057472.0.
3. Cai SH, Li J, Cai CB, **Chen L**, Chen Z. Imaging with referenceless distortion correction using single-shot biaxial spatiotemporally encoded MRI. China Patent, No. ZL201410057539.0.
4. Cai SH, Zhang T, Cai CB, Li J, **Chen L**, Huang JP. Ultrafast multi-slice spatiotemporally encoded MRI with slice-selective dimension segmented. China Patent, No. 201510887987.8.
5. Cai SH, Huang JP, Cai CB, **Chen L**, Liao P. An Efficient Water-Fat Separation Reconstruction Method Based on Single-Shot Spatiotemporally Encoded MRI. China Patent, No. 201710288050.8.