

SHOUCHANG GUO

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EDUCATION

University of Michigan, Ann Arbor, MI – GPA 3.9/4.0 *Sept. 2016 - Present*
Ph.D. Candidate Electrical and Computer Engineering
M.S. Electrical and Computer Engineering (*Signal & Image Processing and Machine Learning*)
Beijing Institute of Technology & Chinese Academy of Sciences *Sept. 2012 - July 2016*
B.S. Information Engineering – GPA 89.2/100 (*Outstanding Graduate Student Award*)

JOURNALS

Guo S, Noll DC, "Oscillating Steady-State Imaging (OSSI): A Novel Method for Functional MRI". *Magnetic Resonance in Medicine*, vol. 84, no. 2, p. 698-712, 2020. doi:10.1002/mrm.28156
Guo S, Fessler JA, and Noll DC, "High-Resolution Oscillating Steady-State fMRI using Patch-Tensor Low-Rank Reconstruction". *Under revision IEEE Transactions on Medical Imaging*.

CONFERENCES

Guo S, Fessler JA, and Noll DC, "Oscillating Steady State Imaging (OSSI) for fMRI using 3D Sparse Acquisition and Model-Based Image Reconstruction". 6th Annual BRAIN Initiative Investigators Meeting, Virtual 2020.
Guo S, Noll DC, and Fessler JA, "OSSI Manifold Model for High-Resolution fMRI Joint Reconstruction and Quantification". *Oral pitch*, ISMRM 28th Annual Meeting & Exhibition, Paris 2020.
Guo S, Fessler JA, and Noll DC, "High SNR and High-Resolution fMRI using 3D OSSI and Tensor Model Reconstruction". ISMRM 28th Annual Meeting & Exhibition, Paris 2020.
Guo S, Fessler JA, and Noll DC, "High Resolution OSS fMRI using Tensor Patch Low Rank plus Sparse Reconstruction". *Travel Trainee Award*, 5th Annual BRAIN Initiative Investigators Meeting, Washington DC 2019.
Noll DC, **Guo S**, Cao AA., "Comparison of Oscillating Steady State to GRE BOLD for fMRI". 5th Annual BRAIN Initiative Investigators Meeting, Washington DC 2019.
Guo S, Noll DC, and Fessler JA, "Dictionary-Based Oscillating Steady State fMRI Reconstruction". *Oral, Summa Cum Laude Award*, In Proceedings of the 27th Annual Meeting of ISMRM, Montreal 2019. p. 1253.
Guo S and Noll DC, "Comparison of Oscillating Steady State to GRE BOLD for fMRI". *Oral*, In Proceedings of the 27th Annual Meeting of ISMRM, Montreal 2019. p. 1170.
Guo S and Noll DC, "Patch-Tensor Low-n-Rank Reconstruction for Oscillating Steady State fMRI Acceleration". In Proceedings of the 26th Annual Meeting of ISMRM, Paris 2018. p. 3531.
Guo S and Noll DC, "High SNR Functional MRI Using Oscillating Steady State Imaging". In Proceedings of the 26th Annual Meeting of ISMRM, Paris 2018. p. 5441.

RESEARCH EXPERIENCE

Course projects, advised by Prof. Mert Pilanci, and Prof. Jia Deng, and Prof. Jeffrey A. Fessler respectively

- *EECS 545 (A+)*: Parallelized neural network training using alternating direction methods of multipliers
- *EECS 542 (A)*: Deep convolutional neural network reconstruction for MRI acceleration
- *EECS 556 (A)*: MRI reconstruction using sparse subspace clustering

Graduate research, advised by Prof. Douglas C. Noll and Prof. Jeffrey A. Fessler *Nov. 2016 - Present*

- Developed a manifold model for fMRI quantification and acceleration
- Accelerated OSSI fMRI acquisition by 12 times using a tensor model and prospective undersampling
- Improved fMRI temporal SNR by a factor of 2 using OSSI and model-based reconstruction

AFFILIATIONS

ISMRM Trainee Member *Oct. 2017 - Present*

IEEE Student Member *Nov. 2019 - Present*

JOURNAL REVIEWS

IEEE Transactions on Computational Imaging *2020*

IEEE Transactions on Medical Imaging *2020*

SKILLS

Medical imaging, signal processing, image reconstruction, optimization, machine learning

MATLAB, Python, Pytorch, Julia, C, Assembly, VHDL, \LaTeX

SELECTED HONORS & AWARDS

ISMRM Summa Cum Laude Award (top 5% of submitted abstracts) *May 2019*

Travel Trainee Award, 5th Annual BRAIN Initiative Investigators Meeting *Apr. 2019*

Graduate Student Fellowship, University of Michigan *Sept. 2018*

ECE Program Nominee for the Dow Sustainability Fellows Program, UMich *Oct. 2016*

Outstanding Graduate Student Award *June 2016*

1st Prize of Summer Social Practice (Team leader and the best of 164 teams) *Oct. 2015*

Tang Nanjun Scholarship (Rank: 1/109) *2013 - 2014*

2nd Prize for Outstanding Student (Rank: 13/199) *Aug. 2013, Feb. 2014 & 2016*

Outstanding Student of Beijing Institute of Technology (Rank: 7/296) *2012 - 2013*

National Endeavor Fellowship (Rank: 7/296) *2012 - 2013*

1st Prize for Outstanding Student (Rank: 4/287) *Feb. 2013*