

SHOUCHANG GUO

2360 Bonisteel Blvd, Ann Arbor, MI 48109
web.eecs.umich.edu/shoucguo

734-647-1996
shoucguo@umich.edu

EDUCATION

University of Michigan, Ann Arbor, MI – GPA 3.9/4.0 *Sep. 2016 - Present*
Ph.D. Candidate Electrical & Computer Engineering
M.S. Electrical & Computer Engineering (Signal & Image Processing & Machine Learning)
Beijing Institute of Technology & Chinese Academy of Sciences *Sep. 2012 - Jul. 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.
Guo S and Dong X, "Modified Omega-K algorithm for ground-based FMCW SAR imaging". *2016 IEEE 13th International Conference on Signal Processing (ICSP)*, Chengdu, China, 2016, pp. 1647-1650.

RESEARCH EXPERIENCE

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

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

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

- U-Net, deep image prior, and RNN based MRI reconstruction
- 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

Research Institute of Radar Technology & National Key Laboratory of Microwave Imaging Technology

Advised by Prof. Cheng Hu

June. 2015 - Aug. 2016

- Modified the conventional Omega-K algorithm for process ground-based FMCW SAR data
- Extracted and tracked moving targets from videos and derived a fast image registration algorithm

Station of Optoelectronics Innovative Experiment, Beijing Institute of Technology

Project Leader, advised by Prof. Zhonglian Zhang

May 2014 - Jun. 2015

- *A Novel Sensing and Control System Based on Cooperative Communication* of National College Students' Innovation Training Program, accomplished cooperative wireless monitor and control
- Designed and made a LCD touch screen based motion control system with DC and stepper motors

AFFILIATIONS

ISMRM Trainee Member

Oct. 2017 - Present

IEEE Student Member

Nov. 2019 - Present

SKILLS

Signal processing, image reconstruction, optimization, deep learning, 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 *April 2019*

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