

## Justin P. Haldar, Ph.D.

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### ACADEMIC POSITIONS

- **Associate Professor**, Signal and Image Processing Institute, Ming Hsieh Department of Electrical and Computer Engineering, University of Southern California. April 2018–Present.
- **Associate Professor (Courtesy Appointment)**, Department of Biomedical Engineering, University of Southern California. April 2018–Present.
- **Assistant Professor**, Signal and Image Processing Institute, Ming Hsieh Department of Electrical Engineering, University of Southern California. August 2012–April 2018.
- **Assistant Professor (Courtesy Appointment)**, Department of Biomedical Engineering, University of Southern California. January 2014–April 2018.
- **Research Assistant Professor**, Signal and Image Processing Institute, Dana & David Dornsife Cognitive Neuroscience Imaging Center, Brain and Creativity Institute, Ming Hsieh Department of Electrical Engineering, University of Southern California. January 2012–August 2012.
- **Postdoctoral Research Associate**, Signal and Image Processing Institute, Dana & David Dornsife Cognitive Neuroscience Imaging Center, Brain and Creativity Institute, Ming Hsieh Department of Electrical Engineering, University of Southern California. July 2011–December 2011.
- **Graduate Research Assistant/Fellow**, Beckman Institute for Advanced Science and Technology, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. Advisor: Professor Zhi-Pei Liang. January 2004–May 2011.

### EDUCATION

- **Doctor of Philosophy in Electrical and Computer Engineering**, May 2011, University of Illinois at Urbana-Champaign. Dissertation: “Constrained Imaging: Denoising and Sparse Sampling.”
- **Master of Science in Electrical Engineering**, August 2005, University of Illinois at Urbana-Champaign. Thesis: “Sparse Matrix Formulations for Fast Image Reconstruction in Multichannel MRI.”
- **Bachelor of Science in Electrical Engineering (Highest Honors)**, May 2004, University of Illinois at Urbana-Champaign. Minors in Computer Science and Mathematics.

### RESEARCH AWARDS AND HONORS – 2005-PRESENT

(Abbreviations: IEEE ISBI – IEEE International Symposium on Biomedical Imaging; IEEE EMBC – IEEE Engineering in Medicine and Biology Conference; ISMRM – International Society for Magnetic Resonance in Medicine; IEEE MIC – IEEE Medical Imaging Conference)

#### Faculty Career Development:

- **National Science Foundation CAREER Award**, 2014.

#### Journal and Conference Paper Awards and Distinctions:

- **Magnetic Resonance in Medicine Editor’s Pick (senior author)**, July 2021. For the paper: “Region-Optimized Virtual (ROVir) Coils: Localization and/or Suppression of Spatial Regions using Sensor-Domain Beamforming.”
- **Magnetic Resonance in Medicine Editor’s Pick (first author)**, August 2020. For the paper: “Fast Submillimeter Diffusion MRI using gSlider-SMS and SNR-Enhancing Joint Reconstruction.”
- **Best Student Paper Award Finalist (senior author)**, IEEE ISBI 2020. For the paper: “Autoregression and structured low-rank modeling of sinograms.”

- **Top Downloaded Paper 2018-2019 (co-author)**, Magnetic Resonance in Medicine. For the paper: “Improving Parallel Imaging by Jointly Reconstructing Multi-Contrast Data.”
- **Top Downloaded Paper 2018-2019 (co-author)**, Magnetic Resonance in Medicine. For the paper: “Impact of (k,t) sampling on DCE MRI tracer kinetic parameter estimation in digital reference objects.”
- **Magnetic Resonance in Medicine Editor’s Pick (co-author)**, August 2018. For the paper: “Improving parallel imaging by jointly reconstructing multi-contrast data.”  
<https://blog.ismrm.org/2018/08/31/qa-with-berkin-bilgic-and-kawin-setsompop/>  
<https://www.youtube.com/watch?v=UiIUZgp0FCk>
- **First-Place Student Paper Award (co-author)**, IEEE MIC 2012. For the paper: “Kinetic Parameter Estimation in Dynamic PET with a Sparsity-Regularized Mixture Model.”
- **Best Student Paper Award (first author)**, IEEE ISBI 2010. For the paper: “Spatiotemporal Imaging With Partially Separable Functions: A Matrix Recovery Approach.”
- **Student Paper Competition First-Place Award (first author)**, IEEE EMBC 2010. For the paper: “Label-Free High-Resolution Imaging of Live Cells with Deconvolved Spatial Light Interference Microscopy.”
- **I. I. Rabi Young Investigator Award (co-author)**, ISMRM 2009. For the paper: “Robust Water/Fat Separation in the Presence of Large Field Inhomogeneities Using a Graph Cut Algorithm.”
- **Student Paper Competition Geographic Finalist: North America (co-author)**, IEEE EMBC 2008. For the paper: “A Network Flow Method for Improved MR Field Map Estimation in the Presence of Water and Fat.”
- **Student Paper Competition Geographic Finalist: North America (first author)**, IEEE EMBC 2007. For the paper: “High-Resolution Diffusion MRI.”

#### Conference Abstract Awards and Distinctions:

- **Summa Cum Laude Merit Award (senior author)**, ISMRM 2021. For the abstract: “Region-Optimized Virtual (ROVir) coils: Application of sensor-domain beamforming for localizing and/or suppressing spatial regions.”
- **Summa Cum Laude Merit Award (co-author)**, ISMRM 2021. For the abstract: “Rapid fetal HASTE imaging using variable flip angles and simultaneous multislice wave-LORAKS.”
- **Magna Cum Laude Merit Award (co-senior author)**, ISMRM 2021. For the abstract: “Feasibility of single breath-hold CINE with combined simultaneous multi-slice (SMS) and region-optimized virtual (ROVir) coils.”
- **Magna Cum Laude Merit Award (co-author)**, ISMRM 2021. For the abstract: “Robust multi-shot EPI with untrained artificial neural networks: Unsupervised scan-specific deep learning for blip up-down acquisition (BUDA).”
- **Summa Cum Laude Merit Award (co-author)**, ISMRM 2020. For the abstract: “Diffusion-PEPTIDE: rapid distortion-free diffusion-relaxometry imaging.”
- **Featured Power Pitch Presentation (senior author)**, ISMRM 2020. For the abstract: “Local perturbation responses: A tool for understanding the characteristics of advanced nonlinear MR reconstruction algorithms.”
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2019. For the abstract: “Learning-Based Jointly-Optimal Design of the Diffusion Encoding Scheme and Orientation Estimation Method for Diffusion MRI.”
- **Science & Education Highlight (senior author)**, ISMRM 2018 (32 highlights were selected from 5,651 abstracts). For the abstract “Multidimensional T1 Relaxation-T2 Relaxation Correlation Spectroscopic Imaging (RR-CSI) for In Vivo Imaging of Microstructure.”  
<https://blog.ismrm.org/daily/#1529400674763-6777e1c8-3aba>
- **Featured Power Pitch Presentation (co-author)**, ISMRM 2018 (hand-selected as one of the most interesting 330 abstracts out of 5,651 accepted). For the abstract: “Influence of whole-brain DCE-MRI (k,t) sampling strategies on variance of pharmacokinetic parameter estimates.”
- **Summa Cum Laude Merit Award (senior author)**, ISMRM 2018. For the abstract: “Multidimensional T1 Relaxation-T2 Relaxation Correlation Spectroscopic Imaging (RR-CSI) for In Vivo Imaging of Microstructure.”
- **Magna Cum Laude Merit Award (co-author)**, ISMRM 2018. For the abstract: “Optimal experiment design for magnetic resonance fingerprinting: New insights and further improvements.”
- **Featured Power Pitch Presentation (senior author)**, ISMRM 2017 (hand-selected as one of the most interesting 220 abstracts out of 6,780 submissions to the conference). For the abstract: “Navigator-free EPI ghost correction using low-rank matrix modeling: Theoretical insights and practical improvements.”
- **1st Place Award for Best Abstract Presentation from the ISMRM Quantitative MR Study Group (senior author)**, ISMRM 2017. For the abstract: “Phantom Validation of Diffusion-Relaxation Correlation Spectroscopic Imaging (DR-CSI).”

- **Summa Cum Laude Merit Award (senior author)**, ISMRM 2017. For the abstract: “Navigator-free EPI ghost correction using low-rank matrix modeling: Theoretical insights and practical improvements.”
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2017. For the abstract: “Faster Diffusion-Relaxation Correlation Spectroscopic Imaging (DR-CSI) using Optimized Experiment Design.”
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2017. For the abstract: “Wave-LORAKS for faster Wave-CAIPI MRI.”
- **Featured Power Pitch Presentation (first author)**, ISMRM 2016 (hand-selected as one of the most interesting 165 abstracts out of 5,915 submissions to the conference). For the abstract: “Whole-brain quantitative diffusion MRI at 660  $\mu\text{m}$  resolution in 25 minutes using gSlider-SMS and SNR-enhancing joint reconstruction.”
- **Top Ten Most Popular Abstract (senior author)**, ISMRM 2016 (one of the most accessed abstracts out of 5,915 submissions). For the abstract: “Diffusion-Relaxation Correlation Spectroscopic Imaging (DR-CSI): An Enhanced Approach to Imaging Microstructure.” <http://www.ismrm.org/2016-annual-meeting-exhibition/most-popular-sessions-abstracts-of-the-2016-meeting/>
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2016. For the abstract: “SENSE-LORAKS: Phase-Constrained Parallel MRI without Phase Calibration.”
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2015. For the abstract: “Simultaneous Multi-slice MRI Reconstruction using LORAKS.”
- **Featured PowerPoster Presentation (first author)**, ISMRM 2014 (hand-selected as one of the most interesting 150 abstracts out of 6,481 submissions to the conference). For the abstract: “LORAKS: Low-Rank Modeling of Local k-Space Neighborhoods.”
- **Featured PowerPoster Presentation (senior author)**, ISMRM 2014 (hand-selected as one of the most interesting 150 abstracts out of 6,481 submissions to the conference). For the abstract: “A Novel Approach for Statistical Estimation of HARDI Diffusion Parameters from Rician and Non-Central Chi Magnitude Images.”
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2014. For the abstract: “P-LORAKS: Low-rank modeling of local k-space neighborhoods with parallel imaging data.”
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2014. For the abstract: “A Novel Approach for Statistical Estimation of HARDI Diffusion Parameters from Rician and Non-Central Chi Magnitude Images.”
- **Magna Cum Laude Merit Award (senior author)**, ISMRM 2013. For the abstract: “Accelerating Data Acquisition for Reversed-Gradient Distortion Correction in Diffusion MRI: A Constrained Reconstruction Approach.”

#### Graduate School Awards, Fellowships, and Travel Grants:

- **M. E. Van Valkenburg Graduate Research Award**, Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 2011.
- **Beckman Institute Graduate Fellowship**, University of Illinois at Urbana-Champaign, Fall 2008-Spring 2009.
- **University of Illinois Fellowship**, University of Illinois at Urbana-Champaign, Fall 2008-Spring 2009.
- **National Science Foundation Graduate Research Fellowship**, Summer 2005-Spring 2008.
- **Electrical and Computer Engineering Distinguished Fellowship**, University of Illinois at Urbana-Champaign, Spring 2004-Fall 2005, Fall 2009.
- **Student Travel Grant**, IEEE ISBI, 2007 and 2008.
- **Educational Stipend**, ISMRM, 2005, 2006, and 2007.
- **Graduate College conference travel grant**, University of Illinois at Urbana-Champaign, 2007, 2010.

#### REFEREED JOURNAL PUBLICATIONS

(Senior author is underlined; authors who were graduate students at the time the work was performed are marked with a \* if I was their principal research advisor, with a \* if I was a coadvisor of their work, and are otherwise marked with a †. Undergraduate authors who worked under my supervision are marked with a ♣, and postdoctoral research associates who worked under my supervision are marked with a ●.)

- J51. R. A. Lobos\*, M. U. Ghani, W. C. Karl, R. M. Leahy, J. P. Haldar. “Autoregression and Structured Low-Rank Modeling of Sinogram Neighborhoods.” *IEEE Transactions on Computational Imaging* 7:1044–1054.  
<https://doi.org/10.1109/TCI.2021.3114994>

- J50. P. J. Slator, M. Palombo, K. Miller, C.-F. Westin, F. Laun, D. Kim<sup>\*</sup>, **J. P. Haldar**, D. Benjamini, G. Lemberskiy, J. P. de Almeida Martins, J. Hutter. “Combined Diffusion-Relaxometry Microstructure Imaging: Current Status and Future Prospects.” *Magnetic Resonance in Medicine*. In Press.  
<https://doi.org/10.1002/mrm.28963>
- J49. B. Kim, N. Schweighofer, **J. P. Haldar**, R. M. Leahy, C. J. Winstein. “Corticospinal tract microstructure predicts distal arm motor improvements in chronic stroke.” *Journal of Neurologic Physical Therapy* 45:273–281, 2021.  
<https://doi.org/10.1097/NPT.0000000000000363>
- J48. Y. Liu<sup>\*</sup>, **J. P. Haldar**. “PALMNU: An Enhanced Proximal Alternating Linearized Minimization Algorithm with Application to Separate Regularization of Magnitude and Phase.” *IEEE Transactions on Computational Imaging* 7:518–530, 2021.  
<https://doi.org/10.1109/TCI.2021.3077806>
- J47. C.-C. Chan<sup>\*</sup>, **J. P. Haldar**. “Local Perturbation Responses and Checkerboard Tests: Characterization tools for nonlinear MRI methods.” *Magnetic Resonance in Medicine* 86:1873–1887, 2021.  
<https://doi.org/10.1002/mrm.28828>
- J46. T. H. Kim<sup>\*</sup>, **J. P. Haldar**. “Efficient Iterative Solutions to Complex-Valued Nonlinear Least-Squares Problems with Mixed Linear and Antilinear Operators.” *Optimization and Engineering*, 2021.  
<https://doi.org/10.1007/s11081-021-09604-4>
- J45. D. Kim<sup>\*</sup>, S. F. Cauley, K. S. Nayak, R. M. Leahy, **J. P. Haldar**. “Region-Optimized Virtual (ROVir) Coils: Localization and/or Suppression of Spatial Regions using Sensor-Domain Beamforming.” *Magnetic Resonance in Medicine* 86:197–212, 2021.  
<https://doi.org/10.1002/mrm.28706>  
 Editor’s Pick, July 2021.
- J44. R. A. Lobos<sup>\*</sup>, W. S. Hoge, A. Javed<sup>†</sup>, C. Liao<sup>†</sup>, K. Setsompop, K. S. Nayak, **J. P. Haldar**. “Robust autocalibrated structured low-rank EPI ghost correction.” *Magnetic Resonance in Medicine* 85:3403–3419, 2021.  
<https://doi.org/10.1002/mrm.28638>
- J43. **J. P. Haldar**, Y. Liu<sup>\*</sup>, C. Liao<sup>†</sup>, Q. Fan, K. Setsompop. “Fast Submillimeter Diffusion MRI using gSlider-SMS and SNR-Enhancing Joint Reconstruction.” *Magnetic Resonance in Medicine* 84:762–776, 2020.  
<https://doi.org/10.1002/mrm.28172>  
 Editor’s Pick, August 2020.
- J42. D. Kim<sup>\*</sup>, J. L. Wisnowski, C. T. Nguyen, **J. P. Haldar**. “Multidimensional Correlation Spectroscopic Imaging of Exponential Decays: From Theoretical Principles to In Vivo Human Applications.” *NMR in Biomedicine* 33:e4244, 2020.  
<https://doi.org/10.1002/nbm.4244>  
 Special Issue on “Inverse Problems in Biomedical Magnetic Resonance.”
- J41. **J. P. Haldar**, K. Setsompop. “Linear Predictability in Magnetic Resonance Imaging Reconstruction: Leveraging Shift-Invariant Fourier Structure for Faster and Better Imaging.” *IEEE Signal Processing Magazine* 37:69–82, 2020.  
<https://doi.org/10.1109/MSP.2019.2949570>  
 Special Issue on on “Computational MRI: Compressed Sensing and Beyond.”
- J40. Y. Bliesener<sup>†</sup>, S. G. Lingala, **J. P. Haldar**, K. S. Nayak. “Impact of (k,t) sampling on DCE MRI tracer kinetic parameter estimation in digital reference objects.” *Magnetic Resonance in Medicine* 83:1625–1639, 2020.  
<https://doi.org/10.1002/mrm.28024>  
 Top Downloaded Paper 2018-2019.
- J39. **J. P. Haldar**, D. Kim<sup>\*</sup>. “OEDIPUS: An Experiment Design Framework for Sparsity-Constrained MRI.” *IEEE Transactions on Medical Imaging* 38:1545–1558, 2019.  
<https://doi.org/10.1109/TMI.2019.2896180>
- J38. T. H. Kim<sup>\*</sup>, B. Bilgic, D. Polak, K. Setsompop, **J. P. Haldar**. “Wave-LORAKS: Combining Wave Encoding with Structured Low-Rank Matrix Modeling for More Highly Accelerated 3D Imaging.” *Magnetic Resonance in Medicine* 81:1620–1633, 2019.  
<https://doi.org/10.1002/mrm.27511>
- J37. B. Zhao, **J. P. Haldar**, C. Liao<sup>†</sup>, D. Ma, M. A. Griswold, K. Setsompop, L. L. Wald. “Optimal Experiment Design for Magnetic Resonance Fingerprinting: Cramer-Rao Bound Meets Spin Dynamics.” *IEEE Transactions on Medical Imaging* 38:844–861, 2019.  
<https://doi.org/10.1109/TMI.2018.2873704>
- J36. J. Li<sup>†</sup>, **J. P. Haldar**, J. C. Mosher, D. R. Nair, J. A. Gonzalez-Martinez, R. M. Leahy. “Scalable and Robust Tensor Decomposition of Spontaneous Stereotactic EEG Data.” *IEEE Transactions on Biomedical Engineering* 66:1549–1558, 2019.  
<https://doi.org/10.1109/TBME.2018.2875467>

- J35. B. Kim<sup>†</sup>, B. E. Fisher, N. Schweighofer, R. M. Leahy, **J. P. Haldar**, S. Choi<sup>†</sup>, D. B. Kay<sup>†</sup>, J. Gordon, C. J. Winstein. “A Comparison of Seven Different DTI-derived Estimates of Corticospinal Tract Structural Characteristics in Chronic Stroke Survivors.” *Journal of Neuroscience Methods* 304:66–75, 2018.  
<https://doi.org/10.1016/j.jneumeth.2018.04.010>
- J34. R. A. Lobos\*, T. H. Kim\*, W. S. Hoge, **J. P. Haldar**. “Navigator-free EPI ghost correction with structured low-rank matrix models: New Theory and Methods.” *IEEE Transactions on Medical Imaging* 37:2390–2402, 2018.  
<https://doi.org/10.1109/TMI.2018.2822053>
- J33. B. Bilgic, T. H. Kim\*, C. Liao<sup>†</sup>, M. K. Manhard, L. L. Wald, **J. P. Haldar**, K. Setsompop. “Improving Parallel Imaging by Jointly Reconstructing Multi-Contrast Data.” *Magnetic Resonance in Medicine* 80:619–632, 2018.  
[Editor’s Pick, August 2018.](#)  
[Top Downloaded Paper 2018-2019.](#)  
<https://doi.org/10.1002/mrm.27076>
- J32. A. Habibi, A. Damasio, B. Ilari, R. Veiga, A. A. Joshi, R. M. Leahy, **J. P. Haldar**, D. Varadarajan\*, C. Bhushan\*, H. Damasio. “Childhood Music Training Induces Change in Micro and Macroscopic Brain Structure: Results from a Longitudinal Study.” *Cerebral Cortex* 28:4336–4347, 2018.  
<https://doi.org/10.1093/cercor/bhx286>
- J31. D. Varadarajan\*, **J. P. Haldar**. “A Theoretical Signal Processing Framework for Linear Diffusion MRI: Implications for Parameter Estimation and Experiment Design.” *NeuroImage* 161:206–218, 2017.  
<https://doi.org/10.1016/j.neuroimage.2017.08.048>
- J30. M. Chong\*, C. Bhushan\*, A. A. Joshi, S. Y. Choi<sup>†</sup>, **J. P. Haldar**, D. W. Shattuck, R. N. Spreng, R. M. Leahy. “Individual Parcellation of Resting fMRI with a Group Functional Connectivity Prior.” *NeuroImage* 156:87–100, 2017.  
<https://doi.org/10.1016/j.neuroimage.2017.04.054>
- J29. D. Kim\*, E. K. Doyle<sup>†</sup>, J. L. Wisnowski, J. H. Kim, **J. P. Haldar**. “Diffusion-Relaxation Correlation Spectroscopic Imaging (DR-CSI): A Multidimensional Approach for Probing Microstructure.” *Magnetic Resonance in Medicine* 78: 2236–2249, 2017.  
<http://dx.doi.org/10.1002/mrm.26629>
- J28. T. H. Kim\*, K. Setsompop, **J. P. Haldar**. “LORAKS Makes Better SENSE: Phase-Constrained Partial Fourier SENSE Reconstruction without Phase Calibration.” *Magnetic Resonance in Medicine* 77:1021–1035, 2017.  
<http://dx.doi.org/10.1002/mrm.26182>
- J27. C. Bhushan\*, M. Chong\*, S. Choi<sup>†</sup>, A. A. Joshi, **J. P. Haldar**, H. Damasio, R. M. Leahy. “Temporal Non-Local Means Filtering Reveals Real-Time Whole-Brain Cortical Interactions in Resting fMRI.” *PLOS ONE* 11:e0158504, 2016.  
<http://dx.doi.org/10.1371/journal.pone.0158504>
- J26. D. Kim\*, **J. P. Haldar**. “Greedy Algorithms for Nonnegativity-Constrained Simultaneous Sparse Recovery.” *Signal Processing* 125:274–289, 2016.  
<http://dx.doi.org/10.1016/j.sigpro.2016.01.021>
- J25. **J. P. Haldar**, J. Zhuo\*. “P-LORAKS: Low-Rank Modeling of Local k-Space Neighborhoods with Parallel Imaging Data.” *Magnetic Resonance in Medicine* 75:1499–1514, 2016.  
<http://dx.doi.org/10.1002/mrm.25717>
- J24. J. H. Kim, S.-K. Song, **J. P. Haldar**. “SNR-Enhancing Joint Reconstruction for Improved Diffusion Imaging of Mouse Spinal Cord White Matter Injury.” *Magnetic Resonance in Medicine* 75:852–858, 2016.  
<http://dx.doi.org/10.1002/mrm.25691>
- J23. D. Varadarajan\*, **J. P. Haldar**. “A Majorize-Minimize Framework for Rician and Non-Central Chi MR Images.” *IEEE Transactions on Medical Imaging* 34:2191–2202, 2015.  
<http://dx.doi.org/10.1109/TMI.2015.2427157>
- J22. C. Bhushan\*, **J. P. Haldar**, S. Choi, A. A. Joshi, D. W. Shattuck, R. M. Leahy. “Co-registration and distortion correction of diffusion and anatomical images based on inverse contrast normalization.” *NeuroImage* 115:269–280, 2015.  
<http://dx.doi.org/10.1016/j.neuroimage.2015.03.050>
- J21. A. Habibi, B. Ilari, K. Crimi<sup>†</sup>, M. Metke, J. T. Kaplan, A. A. Joshi, R. M. Leahy, D. W. Shattuck, S. Y. Choi, **J. Haldar**, B. Ficek<sup>†</sup>, A. Damasio, H. Damasio. “An equal start: Absence of cognitive and neural markers for musical aptitude prior to training in children.” *Frontiers in Human Neuroscience* 8:690, 2014.  
<http://dx.doi.org/10.3389/fnhum.2014.00690>
- J20. **J. P. Haldar**. “Low-Rank Modeling of Local k-Space Neighborhoods (LORAKS) for Constrained MRI.” *IEEE Transactions on Medical Imaging* 33:668–681, 2014.  
<http://dx.doi.org/10.1109/TMI.2013.2293974>

- J19. C. Bhushan\*, A. A. Joshi, R. M. Leahy, **J. P. Haldar**. “Improved  $B_0$ -distortion correction in diffusion MRI using interlaced q-space sampling and constrained reconstruction.” *Magnetic Resonance in Medicine* 72:1218–1232, 2014.  
<http://dx.doi.org/10.1002/mrm.25026>
- J18. Y. Lin\*, **J. P. Haldar**, Q. Li, P. Conti, R. M. Leahy. “Constrained Mixture Modeling for the Estimation of Kinetic Parameters in Dynamic PET.” *IEEE Transactions on Medical Imaging* 33:173–185, 2014.  
<http://dx.doi.org/10.1109/TMI.2013.2283229>
- J17. F. Lam†, S. D. Babacan, **J. P. Haldar**, M. W. Weiner, N. Schuff, Z.-P. Liang. “Denoising Diffusion-Weighted Magnitude MR Images using Rank and Edge Constraints.” *Magnetic Resonance in Medicine* 71:1272–1284, 2014.  
<http://dx.doi.org/10.1002/mrm.24728>
- J16. S. Ashrafulla\*, **J. P. Haldar**, A. A. Joshi, R. M. Leahy. “Canonical Granger Causality Between Regions of Interest.” *NeuroImage* 83:189–199, 2013.  
<http://dx.doi.org/10.1016/j.neuroimage.2013.06.056>
- J15. **J. P. Haldar**, R. M. Leahy. “Linear Transforms for Fourier Data on the Sphere: Application to High Angular Resolution Diffusion MRI of the Brain.” *NeuroImage* 71:233–247, 2013.  
<http://dx.doi.org/10.1016/j.neuroimage.2013.01.022>
- J14. J. Gai, N. Obeid†, J. L. Holtrop†, X.-L. Wu†, F. Lam†, M. Fu†, **J. P. Haldar**, W.-m. W. Hwu, Z.-P. Liang, B. P. Sutton. “More IMPATIENT: A Gridding-Accelerated Toeplitz-Based Strategy for Non-Cartesian High-Resolution 3D MRI on GPUs.” *Journal of Parallel and Distributed Computing* 73:686–697, 2013.  
<http://dx.doi.org/10.1016/j.jpdc.2013.01.001>
- J13. **J. P. Haldar**†, V. J. Wedeen, M. Nezamzadeh, G. Dai, M. W. Weiner, N. Schuff, Z.-P. Liang. “Improved Diffusion Imaging through SNR-Enhancing Joint Reconstruction.” *Magnetic Resonance in Medicine* 69:277–289, 2013.  
<http://dx.doi.org/10.1002/mrm.24229>
- J12. B. Zhao†, **J. P. Haldar**†, A. G. Christodoulou†, Z.-P. Liang. “Image Reconstruction from Highly Undersampled  $(k, t)$ -Space Data with Joint Partial Separability and Sparsity Constraints.” *IEEE Transactions on Medical Imaging* 31:1809–1820, 2012.  
<http://dx.doi.org/10.1109/TMI.2012.2203921>
- J11. Y. Wang, Q. Wang†, **J. P. Haldar**†, F.-C. Yeh†, M. Xie, P. Sun, K. Trinkaus, R. S. Klein, A. H. Cross, S.-K. Song. “Quantification of increased cellularity during inflammatory demyelination.” *Brain* 134:3587–3598, 2011.  
<http://dx.doi.org/10.1093/brain/awr307>
- J10. **J. P. Haldar**†, Z. Wang†, G. Popescu, Z.-P. Liang. “Deconvolved Spatial Light Interference Microscopy for Live Cell Imaging.” *IEEE Transactions on Biomedical Engineering* 58:2489–2497, 2011.  
<http://dx.doi.org/10.1109/TBME.2011.2158003>
- J9. D. Hernando†, D. C. Karampinos†, K. F. King, **J. P. Haldar**†, S. Majumdar, J. G. Georgiadis, Z.-P. Liang. “Removal of Olefinic Fat Chemical Shift Artifact in Diffusion MRI.” *Magnetic Resonance in Medicine* 65:692–701, 2011.  
<http://dx.doi.org/10.1002/mrm.22670>
- J8. **J. P. Haldar**†, D. Hernando†, Z.-P. Liang. “Compressed-Sensing MRI with Random Encoding.” *IEEE Transactions on Medical Imaging* 30:893–903, 2011.  
<http://dx.doi.org/10.1109/TMI.2010.2085084>
- J7. R. John, R. Rezaeipoor, S. G. Adie, E. J. Chaney, A. L. Oldenburg, M. Marjanovic, **J. P. Haldar**†, B. Sutton, S. A. Boppart. “In vivo magnetomotive optical molecular imaging using targeted magnetic nanoprobles.” *Proceedings of the National Academy of Sciences of the United States of America* 107:8085–8090, 2010.  
<http://dx.doi.org/10.1073/pnas.0913679107>
- J6. D. Hernando†, P. Kellman, **J. P. Haldar**†, Z.-P. Liang. “Robust water/fat separation in the presence of large field inhomogeneities using a graph cut algorithm.” *Magnetic Resonance in Medicine* 63:79–90, 2010.  
<http://dx.doi.org/10.1002/mrm.22177>  
 Recipient of the 2009 ISMRM I. I. Rabi Young Investigator Award.
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- C44. B. Zhao<sup>†</sup>, **J. P. Haldar**<sup>†</sup>, C. Brinegar<sup>†</sup>, Z.-P. Liang. “Low Rank Matrix Recovery for Real-Time Cardiac MRI.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Rotterdam, 2010, pp. 996–999.  
<http://dx.doi.org/10.1109/ISBI.2010.5490156>
- C43. H. M. Nguyen<sup>†</sup>, **J. P. Haldar**<sup>†</sup>, M. N. Do, Z.-P. Liang. “Denoising of MR Spectroscopic Imaging Data with Spatial-Spectral Regularization.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Rotterdam, 2010, pp. 720–723.  
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- C42. Y. Zhuo<sup>†</sup>, X.-L. Wu<sup>†</sup>, **J. P. Haldar**<sup>†</sup>, W.-m. Hwu, Z.-P. Liang, B. P. Sutton. “Accelerating Iterative Field-Compensated MR Image Reconstruction on GPUs.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Rotterdam, 2010, pp. 820–823.  
<http://dx.doi.org/10.1109/ISBI.2010.5490112>
- C41. H. M. Nguyen<sup>†</sup>, Z. J. Gahvari<sup>†</sup>, **J. P. Haldar**<sup>†</sup>, M. N. Do, Z.-P. Liang. “Cramér-Rao Bound Analysis of Echo Time Selection for 1H-MR Spectroscopy.” *31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Minneapolis, 2009, pp. 2692–2695.  
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- C40. **J. P. Haldar**<sup>†</sup>, D. Hernando<sup>†</sup>, **Z.-P. Liang**. “Super-Resolution Reconstruction of MR Image Sequences with Contrast Modeling.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Boston, 2009, pp. 266–269. <http://dx.doi.org/10.1109/ISBI.2009.5193035>
- C39. **W.-m. W. Hwu**, D. Nandakumar<sup>†</sup>, **J. Haldar**<sup>†</sup>, I. C. Atkinson, B. Sutton, **Z.-P. Liang**, K. R. Thulborn. “Accelerating MR Image Reconstruction on GPUs.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Boston, 2009, pp. 1283–1286. <http://dx.doi.org/10.1109/ISBI.2009.5193297>
- C38. **J. P. Haldar**<sup>†</sup>, K. Sakaie, **Z.-P. Liang**. “Resolution and Noise Properties of Linear Phase-Constrained Partial Fourier Reconstruction.” *International Society for Magnetic Resonance in Medicine 17th Scientific Meeting*, Honolulu, 2009, p. 2862. (Abstract) <https://cds.ismrm.org/protected/09MPProceedings/PDFfiles/02862.pdf>
- C37. **J. P. Haldar**<sup>†</sup>, Q. Gao<sup>†</sup>, X. J. Zhou, **Z.-P. Liang**. “Optimized Measurement of Anomalous Diffusion.” *International Society for Magnetic Resonance in Medicine 17th Scientific Meeting*, Honolulu, 2009, p. 3570. (Abstract) <https://cds.ismrm.org/protected/09MPProceedings/PDFfiles/03570.pdf>
- C36. D. Hernando<sup>†</sup>, P. Kellman, **J. Haldar**<sup>†</sup>, **Z.-P. Liang**. “Robust Water/Fat Separation in the Presence of Large Field Inhomogeneities Using a Graph Cut Algorithm.” *International Society for Magnetic Resonance in Medicine 17th Scientific Meeting*, Honolulu, 2009, p. 459. (Abstract)  
[Winner of the I. I. Rabi Young Investigator Award.](#)  
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- C35. D. Hernando<sup>†</sup>, D. C. Karampinos<sup>†</sup>, K. F. King, **J. Haldar**<sup>†</sup>, J. G. Georgiadis, **Z.-P. Liang**. “Removal of Olefinic Fat Signal in Body Diffusion-Weighted EPI Using a Dixon Method.” *International Society for Magnetic Resonance in Medicine 17th Scientific Meeting*, Honolulu, 2009, p. 2064. (Abstract) <https://cds.ismrm.org/protected/09MPProceedings/PDFfiles/02064.pdf>
- C34. Q. Gao<sup>†</sup>, **J. P. Haldar**<sup>†</sup>, N. Rangwala<sup>†</sup>, R. L. Magin, **Z.-P. Liang**, X. J. Zhou. “Analysis of High b-Value Diffusion Images Using a Fractional Order Diffusion Model with Denoising Image Reconstruction.” *International Society for Magnetic Resonance in Medicine 17th Scientific Meeting*, Honolulu, 2009, p. 1418. (Abstract) <https://cds.ismrm.org/protected/09MPProceedings/PDFfiles/01418.pdf>
- C33. **J. P. Haldar**<sup>†</sup>, T.-H. Wu, Q. Wang<sup>†</sup>, C.-I. Chen, S.-K. Song, **Z.-P. Liang**. “Further Development in Anatomically Constrained MR Image Reconstruction: Application to Multimodal Imaging of Mouse Stroke.” *30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Vancouver, 2008, pp. 422–425. <http://dx.doi.org/10.1109/IEMBS.2008.4649180>
- C32. D. Hernando<sup>†</sup>, P. Kellman, **J. P. Haldar**<sup>†</sup>, **Z.-P. Liang**. “A Network Flow Method for Improved MR Field Map Estimation in the Presence of Water and Fat.” *30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Vancouver, 2008, pp. 82–85.  
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- C31. I. C. Atkinson, A. Lu, **J. P. Haldar**<sup>†</sup>, **Z.-P. Liang**, K. R. Thulborn. “Human 17-Oxygen Imaging at 9.4T and Enhanced Reconstruction using 23-Sodium.” *American Society of Neuroradiology 46th Annual Meeting*, New Orleans, 2008, p. 214. (Abstract)
- C30. **J. P. Haldar**<sup>†</sup>, **Z.-P. Liang**. “Joint Reconstruction of Noisy High-Resolution MR Image Sequences.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Paris, 2008, pp. 752–755. <http://dx.doi.org/10.1109/ISBI.2008.4541105>
- C29. S. S. Stone<sup>†</sup>, **J. P. Haldar**<sup>†</sup>, S. C. Tsao<sup>†</sup>, W.-M. W. Hwu, **Z.-P. Liang**, B. P. Sutton. “Accelerating Advanced MRI Reconstructions on GPUs.” *ACM International Conference on Computing Frontiers*, Ischia, 2008, pp. 261–272. <http://doi.acm.org/10.1145/1366230.1366276>
- C28. **J. P. Haldar**<sup>†</sup>, V. J. Wedeen, M. Nezamzadeh, G. Dai, N. Schuff, **Z.-P. Liang**. “Improved SNR in Diffusion Spectrum Imaging with Statistical Reconstruction.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p. 141. (Abstract) <https://cds.ismrm.org/protected/08MPProceedings/PDFfiles/00141.pdf>
- C27. **J. P. Haldar**<sup>†</sup>, D. Hernando<sup>†</sup>, D. C. Karampinos<sup>†</sup>, B. P. Sutton, J. G. Georgiadis, **Z.-P. Liang**. “Sensitivity Encoding of Chemical Shifts.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p. 1283. (Abstract) <https://cds.ismrm.org/protected/08MPProceedings/PDFfiles/01283.pdf>

- C26. **J. P. Haldar**<sup>†</sup>, S. S. Stone<sup>†</sup>, H. Yi<sup>†</sup>, S. C. Tsao<sup>†</sup>, B. P. Sutton, W.-M. W. Hwu, **Z.-P. Liang**. “Fast MR Image Reconstruction using Graphics Processing Units.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p. 1493. (Abstract)  
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- C25. I. C. Atkinson, K. R. Thulborn, A. Lu, **J. Haldar**<sup>†</sup>, X. J. Zhou, T. Claiborne, **Z.-P. Liang**. “Quantitative 23-Sodium and 17-Oxygen MR Imaging in Human Brain at 9.4 Tesla Enhanced by Constrained k-Space Reconstruction.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p. 335. (Abstract)  
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- C24. D. Hernando<sup>†</sup>, **J. Haldar**<sup>†</sup>, L. Ying, K. King, D. Xu, **Z.-P. Liang**. “Interventional MRI with sparse sampling: an application of compressed sensing.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p. 1482. (Abstract)  
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- C23. D. Hernando<sup>†</sup>, P. Kellman, **J. Haldar**<sup>†</sup>, **Z.-P. Liang**. “Estimation of water/fat images, B0 field map and T2\* map using VARPRO.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p. 1517. (Abstract)  
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- C22. D. Hernando<sup>†</sup>, P. Kellman, **J. Haldar**<sup>†</sup>, **Z.-P. Liang**. “Improved field map estimation in the presence of multiple spectral components.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p.3054. (Abstract)  
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- C21. J. H. Kim, **J. Haldar**<sup>†</sup>, **Z.-P. Liang**, **S.-K. Song**. “Actively Decoupled Two Coil System Enables in Vivo DTI of Mouse Cervical Spinal Cord at 4.7 T.” *International Society for Magnetic Resonance in Medicine 16th Scientific Meeting*, Toronto, 2008, p. 2304. (Abstract)  
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- C20. **K. R. Thulborn**, I. C. Atkinson, A. Lu, T. Claiborne, M. P. Flannery, X. J. Zhou, **J. Haldar**<sup>†</sup>, **Z.-P. Liang**. “Metabolic MR Imaging of Human Brains at 9.4 Tesla.” *6th Bi-Annual Minnesota Workshops on High Field MR Imaging and Spectroscopy and MR Imaging of Brain Function*, Minneapolis, 2007. (Abstract)
- C19. S. S. Stone<sup>†</sup>, H. Yi<sup>†</sup>, **J. P. Haldar**<sup>†</sup>, W.-M. W. Hwu, B. P. Sutton, **Z.-P. Liang**. “How GPUs Can Improve the Quality of Magnetic Resonance Imaging.” *The First Workshop on General Purpose Processing on Graphics Processing Units*, Boston, 2007.  
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- C18. C. L. Shaffer<sup>†</sup>, D. Hernando<sup>†</sup>, J. Stastny<sup>†</sup>, S. Kalyanam, **J. Haldar**<sup>†</sup>, E. Chaney, X. Liang<sup>†</sup>, **M. F. Insana**. “Multimodality Imaging Development Using 3D Gel Cultures.” *Biomedical Engineering Society Annual Fall Meeting*, Los Angeles, 2007, p. 374. (Abstract)
- C17. **J. P. Haldar**<sup>†</sup>, **Z.-P. Liang**. “High-Resolution Diffusion MRI.” *29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Lyon, 2007, pp. 311–314.  
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[Student Paper Competition Geographic Finalist: North America.](#)
- C16. **J. P. Haldar**<sup>†</sup>, D. Hernando<sup>†</sup>, M. D. Budde<sup>†</sup>, Q. Wang<sup>†</sup>, S.-K. Song, **Z.-P. Liang**. “High-Resolution MR Metabolic Imaging.” *29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Lyon, 2007, pp. 4324–4326.  
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[Invited Presentation.](#)
- C15. **J. P. Haldar**<sup>†</sup>, J. Anderson<sup>†</sup>, S.-W. Sun. “Maximum Likelihood Estimation of T1 Relaxation Parameters Using VARPRO.” *Joint Annual Meeting ISMRM-ESMRMB*, Berlin, 2007, p. 41. (Abstract)  
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- C14. **J. P. Haldar**<sup>†</sup>, D. Hernando<sup>†</sup>, B. P. Sutton, **Z.-P. Liang**. “Data Acquisition Considerations for Compressed Sensing in MRI.” *Joint Annual Meeting ISMRM-ESMRMB*, Berlin, 2007, p. 829. (Abstract)  
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- C13. **J. P. Haldar**<sup>†</sup>, D. Hernando<sup>†</sup>, M. D. Budde<sup>†</sup>, Q. Wang<sup>†</sup>, S.-K. Song, **Z.-P. Liang**. “High-Resolution Spectroscopic Imaging with Statistical Reconstruction.” *Joint Annual Meeting ISMRM-ESMRMB*, Berlin, 2007, p. 1231. (Abstract)  
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- C12. **J. P. Haldar**<sup>†</sup>, D. Hernando<sup>†</sup>, **Z.-P. Liang**. “Estimation of Compartmental Signals from Limited Fourier Samples.” *Joint Annual Meeting ISMRM-ESMRMB*, Berlin, 2007, p. 1910. (Abstract)  
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- C11. D. Hernando<sup>†</sup>, **J. Haldar**<sup>†</sup>, B. Sutton, Z.-P. Liang. “Removal of Lipid Nuisance Signals in MRSI Using Spatial-Spectral Constraints.” *Joint Annual Meeting ISMRM-ESMRMB*, Berlin, 2007, p. 1244. (Abstract)  
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- C10. D. Hernando<sup>†</sup>, **J. Haldar**<sup>†</sup>, J. Ma, Z.-P. Liang. “A Linear Prediction Approach to Joint Estimation of Water/Fat Images and Field Inhomogeneity Map.” *Joint Annual Meeting ISMRM-ESMRMB*, Berlin, 2007, p. 1629. (Abstract)  
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- C9. **J. P. Haldar**<sup>†</sup>, D. Hernando<sup>†</sup>, Z.-P. Liang. “Shaping Spatial Response Functions for Optimal Estimation of Compartmental Signals from Limited Fourier Data.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Arlington, 2007, pp. 1364–1367.  
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- C8. D. Hernando<sup>†</sup>, **J. Haldar**<sup>†</sup>, B. Sutton, Z.-P. Liang. “Removal of Lipid Signal in MRSI Using Spatial-Spectral Constraints.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Arlington, 2007, pp. 1360–1363.  
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- C7. **J. P. Haldar**<sup>†</sup>, M. Jacob, A. Ebel, X. Zhu, N. Schuff, D. Hernando<sup>†</sup>, B. Sutton, Z.-P. Liang. “Constrained Spectroscopic Imaging with Hard and Soft Anatomical Boundary Constraints.” *International Society for Magnetic Resonance in Medicine 14th Scientific Meeting*, Seattle, 2006, p. 3077. (Abstract)  
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- C6. M. Jacob, B. P. Sutton, **J. Haldar**<sup>†</sup>, Z.-P. Liang. “Improved spectroscopic imaging using echo-planar scans and sparse reconstruction.” *International Society for Magnetic Resonance in Medicine 14th Scientific Meeting*, Seattle, 2006, p. 2964. (Abstract)  
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- C5. **J. P. Haldar**<sup>†</sup>, M. Jacob, A. Ebel, X. Zhu, N. Schuff, D. Hernando<sup>†</sup>, B. Sutton, Z.-P. Liang. “Regularized Inversion of Noisy, Incomplete MR Spectroscopic Imaging Data with Anatomical Prior.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Arlington, 2006, pp. 718–721.  
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- C4. D. Hernando<sup>†</sup>, **J. Haldar**<sup>†</sup>, Z.-P. Liang. “Reduced-Encoding MRI Using Higher-Order Generalized Series.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Arlington, 2006, pp. 29–32.  
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- C3. M. Jacob, B. Sutton, **J. Haldar**<sup>†</sup>, Z.-P. Liang. “On Model-Based MR Spectroscopic Imaging.” *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, Arlington, 2006, pp. 726–729.  
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- C2. L. Ying, **J. Haldar**<sup>†</sup>, Z.-P. Liang. “An Efficient Non-Iterative Reconstruction Algorithm for Parallel MRI with Arbitrary K-Space Trajectories.” *27th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Shanghai, 2005, pp. 1344–1347.  
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- C1. **J. P. Haldar**<sup>†</sup>, L. Ying, Z.-P. Liang. “Lattice Sampling of k-Space for Parallel Imaging.” *International Society for Magnetic Resonance in Medicine 13th Scientific Meeting*, Miami, 2005, p. 2420. (Abstract)  
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## PATENTS

- **J. P. Haldar**, R. M. Leahy. “Linear Transform Approach for Processing Diffusion Magnetic Resonance Imaging Data.” US Patent No. 9,880,246.
- B. Zhao, **J. P. Haldar**, L. L. Wald. “Systems and Methods for Designing Magnetic Resonance Fingerprinting Imaging Parameters.” US Patent No. 10,241,173.
- **J. P. Haldar**, D. Kim. “Diffusion-relaxation correlation spectroscopic imaging.” Provisional US patent 62/503,836, US patent application number 15/976,548.
- T. H. Kim, **J. P. Haldar**. “Scan-Specific Recurrent Neural Network for Image Reconstruction.” Provisional US patent number 62/879,982. US patent application number 16/939,535.
- **J. P. Haldar**, D. Kim. “Region-Optimized Virtual (ROVir) Coils.” Provisional US patent number 63/127,046.



## ACTIVE RESEARCH SUPPORT

- **NSF CNS-1828736: “MRI: Development of a High-Performance Low-Field MRI for Dynamic Imaging.”**  
Division of Computer and Network Systems, National Science Foundation.  
Role: Co-Principal Investigator (Co-PIs: K. Nayak, D. Byrd, K. Iskarous, J. Haldar, S. Narayanan). 10/2018–09/2023
- **MHI: “Image Enhancement for Low-Field MRI.”**  
Ming Hsieh Institute for Research on Engineering-Medicine for Cancer, University of Southern California  
Role: Co-Principal Investigator (PIs: J. Haldar/J. Acharya). 08/2021–07/2022
- **NIH R01 MH116173 (Impact Score 17; top 3%): “Next Generation In-vivo Diffusion Imaging at Sub Millimeter Resolution.”**  
National Institute of Mental Health, National Institutes of Health  
Role: Co-Investigator, PI of Subcontract to USC (PIs: K. Setsompop/Y. Rathi). 03/2018–08/2022
- **NIH R01 NS074980 (Impact Score 20; top 5%): “Interactive Software for Semiautomated Analysis of Structural Brain Images.”**  
National Institute of Neurological Disorders and Stroke, National Institutes of Health  
Role: Co-Investigator (PIs: D. Shattuck/R. Leahy). 04/2017–03/2022

## COMPLETED RESEARCH SUPPORT

- **NSF CCF-1350563: “CAREER: Low-Rank Matrix Modeling for Constrained Reconstruction from Noisy and Sparsely-Sampled Data.”**  
Communications and Information Foundations Program, National Science Foundation  
Role: Principal Investigator. 04/2014–03/2020
- **NIH R21 EB022951 (Impact Score 18; top 3%): “Faster MRI with Sparse Sampling and Low-Rank Modeling.”**  
National Institute of Biomedical Imaging and Bioengineering, National Institutes of Health  
Role: Principal Investigator. 07/2016–04/2019
- **NIH R01 NS089212 (Impact Score 14; top 2%): “A Brain Atlas for Mapping Connectivity in Focal Epilepsy.”**  
National Institute of Neurological Disorders and Stroke, National Institutes of Health  
Role: Co-Investigator (PIs: J. Mosher/R. Leahy). 04/2015–06/2020
- **NIH R33 CA225400 (Impact Score 28): “Area B: Precise DCE-MRI Assessment of Brain Tumors.”**  
National Cancer Institute, National Institutes of Health  
Role: Co-Investigator (PI: K. Nayak). 09/2017–08/2020
- **NIH UL1 RR031986: “Improved DCE Neuro-MRI using Constrained Reconstruction.”**  
Southern California Clinical and Translational Science Institute Multidisciplinary Research Project Award  
Role: Co-Investigator (PI: K. Nayak). 07/2013–06/2014
- **AFRL FA8650-17-C-9112: “PRISMA: Ptychography-based Rapid Imaging of Nano-Structures with Multi-layer Assemblies.”**  
Air Force Research Laboratory  
Role: Co-Investigator (PI: J. Damoulakis). 11/2016–02/2022

## INVITED TALKS (EXTERNAL)

- “Joint Reconstruction for Diffusion MRI,” Biomedical Magnetic Resonance Laboratory, Washington University in St. Louis School of Medicine, St. Louis, MO, August 10, 2007.
- “High-Resolution Diffusion MRI,” *Annual Conference of the IEEE Engineering in Medicine and Biology Society*, Lyon, France, August 23, 2007. Special session for student paper award finalists.
- “High-Resolution MR Metabolic Imaging,” *Annual Conference of the IEEE Engineering in Medicine and Biology Society*, Lyon, France, August 25, 2007. Special session titled “MRI: Recent Advances in Physiological and Metabolic Imaging.”



- “Data Acquisition Schemes for Compressed Sensing in Magnetic Resonance Imaging,” *Illinois/Missouri Applied Harmonic Analysis Seminar*, Bloomington, IL, April 19, 2008.
- “An Introduction to Magnetic Resonance Imaging,” *Harmonic Analysis and Mathematical Physics Seminar*, Urbana, IL, October 28, 2008.
- “MR Image Reconstruction using GPU-level Parallelism,” *Universal Parallel Computing Research Center Multicore Applications Workshop*, Redmond, WA, May 28, 2009.
- “Accelerating Advanced MR Image Reconstruction using GPUs,” *Virtual School of Computational Science and Engineering Summer School 2009: Many-Core Processors for Science and Engineering Applications*, Urbana, IL, August 10, 2009.
- “Joint Reconstruction of Noisy High-Resolution MR Image Sequences,” Center for Imaging of Neurodegenerative Diseases, San Francisco VA Medical Center, San Francisco, CA, July 6, 2010.
- “Label-Free High-Resolution Imaging of Live Cells With Deconvolved Spatial Light Interference Microscopy,” *Annual Conference of the IEEE Engineering in Medicine and Biology Society*, Buenos Aires, Argentina, September 1, 2010. Special session for student paper award finalists.
- “Magnetic Resonance Imaging and Spectroscopy: Beyond the Fourier Transform,” Electrical and Computer Engineering Graduate Seminar, University of Iowa, Iowa City, IA, March 3, 2011.
- “Toward High-Resolution MR Neuroimaging: Beyond the Fourier Transform,” Ming Hsieh Department of Electrical Engineering, University of Southern California, Los Angeles, CA, March 18, 2011.
- “Low-Rank Approximations for Dynamic Imaging,” *IEEE International Symposium on Biomedical Imaging*, Chicago, IL, March 31, 2011. Special session titled “Compressive Sampling for Biomedical Imaging.”
- “Reconstructing High-Dimensional Signals from Sparsely-Sampled Data using Rank Constraints: Application to Accelerated Magnetic Resonance Imaging,” *Janelia Conference on BioImage Informatics II*, Howard Hughes Medical Institute Janelia Farm Research Campus, Ashburn, VA, September 20, 2011.
- “Some Signal Processing Methods for Faster and Better Diffusion MRI,” *Symposium for Brain Imaging Techniques and Analysis*, National Yang-Ming University, Taipei, Taiwan, June 7, 2012.
- “Constrained Magnetic Resonance Imaging: Denoising and Sparse Sampling,” Research Center for Information Technology Innovation, Academia Sinica, Taipei, Taiwan, June 8, 2012.
- “Magnetic Resonance Image Sequences: Acquisition, Reconstruction, and Analysis.” *NSF IGERT on Video Bioinformatics Fall Retreat*, Lake Arrowhead, CA, October 11, 2014.  
[Keynote Lecture](#)
- “Constrained Magnetic Resonance Imaging: Beyond the Fourier Transform.” Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan, June 22, 2015.
- “Low-Rank Modeling of Local k-Space Neighborhoods: From Phase and Support Constraints to Structured Sparsity.” *SPIE Wavelets and Sparsity XVI*, San Diego, CA, August 2015. Special session entitled “Sparse Representations in MRI.”
- “Constrained Magnetic Resonance Imaging: Moving Beyond the Fourier Transform using the Blessings of Dimensionality.” *BrainMap Seminar Series*, Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital/Harvard-MIT Division of Health Sciences and Technology, Boston, MA, October 21, 2016.
- “Computational imaging with LORAKS: Reconstructing linearly predictable signals using low-rank matrix regularization.” *Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, October 2017. Special session titled “Computational Imaging.”
- “Closing the Loop: Applying Lessons from Big Data to Improve Experiment Design in Behavioral Magnetic Resonance Neuroimaging.” *Society for Brain Mapping & Therapeutics 16th Annual Congress*, Los Angeles, CA, March 2019. Special session titled “Predictive modeling and Big data analytics in Behavioral Neuroscience.”
- “Constrained Magnetic Resonance Imaging and the Blessings of Dimensionality.” *Brain Mapping Center Seminar Series*, Ahmanson-Lovelace Brain Mapping Center, University of California Los Angeles, Los Angeles, CA, April 4, 2019.  
<https://youtu.be/O7ND1kdrRs0>
- “Multidimensional diffusion-relaxation correlation spectroscopic imaging.” *ISMRM Member Initiated Symposium on Combined Diffusion-Relaxometry*, Montreal, Canada, May 16, 2019.
- “Optimal Sampling & Reconstruction: Theory and Applications.” *ISMRM Sedona Conference on MR Data Collection and Image Reconstruction*, Sedona, AZ, January 27, 2020.

- My group gave three invited talks (“Beyond MSE and SSIM: More Comprehensive Performance Evaluation of Advanced Image Reconstruction Methods”; “Accelerated MRI Reconstruction Using LORAKS: Leveraging k-space Linear Predictability and Structured Low-rank Modeling to Predict Missing Samples”; and “Diffusion-Relaxation Correlation Spectroscopic Imaging: From experiment design to spatial mapping of microstructure”) at the *Workshop on MRI Acquisition & Reconstruction*, September 7–9, 2021.

## TEACHING

- **Instructor**, EE 483: Introduction to Digital Signal Processing, University of Southern California, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Fall 2019, Fall 2020, Fall 2021. (Course I substantially revised).
- **Instructor**, EE 591: Magnetic Resonance Imaging and Reconstruction, University of Southern California, Fall 2013, Fall 2016. (Course I substantially revised).
- **Instructor**, EE 592: Computational Methods for Inverse Problems, University of Southern California, Fall 2014, Fall 2015, Fall 2017, Spring 2020, Spring 2021. (Course I created/developed).
- **Instructor** (with K. Nayak), EE 598: Electrical Engineering Research Seminar, University of Southern California, Fall 2013. (Course I created with K. Nayak).
- **Instructor**, EE 599: Vector Space Methods for Signal Processing, University of Southern California, Spring 2013. (Course I created/developed).
- **Guest Lecturer**, EE 301L: Linear Systems, University of Southern California, Fall 2012, Fall 2013.
- **Guest Lecturer**, EE 598: Electrical Engineering Research Seminar, University of Southern California, Fall 2012.
- **Guest Lecturer**, EE 599: Computational Imaging and Brain Connectivity, University of Southern California, Spring 2012.
- **Guest Lecturer**, BME 505aL: Laboratory Projects in Biomedical Engineering, University of Southern California, Fall 2019.
- **Guest Lecturer**, BME 525: Advanced Biomedical Imaging, University of Southern California, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Spring 2020, Spring 2021.
- **Guest Lecturer**, BME 533: Biomedical Engineering Seminars, University of Southern California, Fall 2012.
- **Guest Lecturer**, NIIN 598: Neuroimaging and Informatics External Speaker Seminar Series, University of Southern California, Fall 2016.
- **Guest Lecturer**, ECE 480: Magnetic Resonance Imaging, University of Illinois at Urbana-Champaign, Fall 2005 and Fall 2007.
- **Guest Lecturer**, BIOE 120: Introduction to Bioengineering, University of Illinois at Urbana-Champaign, Fall 2007.

## MENTORING

- Supervised Research
  - Postdoctoral Research Associates
    - Daeun Kim (with R. Leahy). Fall 2019-Fall 2020.  
Now a postdoc at the Keck School of Medicine, University of Southern California.
  - Ph.D. Students (serving as primary advisor)
    - Divya Varadarajan, USC Electrical Engineering. Fall 2013-Summer 2018.  
Dissertation: “Novel Theoretical Characterization and Optimization of Experimental Efficiency for Diffusion MRI.”  
Now a postdoc at the Martinos Center for Biomedical Imaging, Massachusetts General Hospital/Harvard Medical School.  
Selected Awards and Honors while at USC:
      - \* 2017 Ming Hsieh Institute PhD Scholar

- Daeun Kim, USC Electrical Engineering. Fall 2013-Summer 2019.  
Dissertation: “High-dimensional Magnetic Resonance Imaging of Microstructure.”  
Now a postdoc at the Keck School of Medicine, University of Southern California.  
Selected Awards and Honors while at USC:
  - \* 2021 ISMRM Junior Fellow
  - \* 2020 Electrical and Computer Engineering Best Dissertation Award
  - \* 2017 Alfred E. Mann Innovation in Engineering Doctoral Fellowship
  - \* 2017 Women in Science and Engineering (WiSE) Merit Award for Current Doctoral Students
  - \* 2016 Best Poster Award, USC Ming Hsieh Department of Electrical Engineering Research Festival
- Tae Hyung Kim, USC Electrical Engineering. Fall 2014-Summer 2020.  
Dissertation: “Shift-Invariant Autoregressive Reconstruction for MRI.”  
Now a postdoc at the Martinos Center for Biomedical Imaging, Massachusetts General Hospital/Harvard Medical School.  
Selected Awards and Honors while at USC:
  - \* 2019 Ming Hsieh Institute PhD Scholar
  - \* 2014 USC Annenberg Graduate Fellowship
- Rodrigo Lobos, USC Electrical Engineering. Fall 2015-Present.  
Selected Awards and Honors while at USC:
  - \* 2021 Ming Hsieh Institute PhD Scholar
- Yunsong Liu, USC Electrical Engineering. Fall 2017-Present.  
Selected Awards and Honors while at USC:
  - \* 2017 USC Viterbi/Graduate School PhD Fellowship
- Jiayang Wang, USC Electrical Engineering. Fall 2018-Present.  
Selected Awards and Honors while at USC:
  - \* 2018 USC Annenberg Graduate Fellowship
- Chin-Cheng Chan, USC Electrical Engineering. Fall 2019-Present.  
Selected Awards and Honors while at USC:
  - \* 2019 USC Annenberg Graduate Fellowship
- Hao-Ting Kung, USC Electrical Engineering. Fall 2021-Present.  
Selected Awards and Honors while at USC:
  - \* 2021 USC Viterbi Graduate Fellowship

Ph.D. Students (not as primary advisor)

- Chitresh Bhushan, USC Electrical Engineering (primary advisor: R. Leahy). Fall 2011-Spring 2016.  
Dissertation: “Correction, coregistration and connectivity analysis of multi-contrast brain MRI.”  
Now a research scientist at GE Global Research.
- Syed Ashrafulla, USC Electrical Engineering (primary advisor: R. Leahy). Fall 2011-Spring 2014.  
Dissertation: “Causality and consistency in electrophysiological signals.”  
Now a software engineer at Google.
- Yanguang Lin, USC Electrical Engineering (primary advisor: R. Leahy). Fall 2011-Spring 2012.  
Dissertation: “Model based PET reconstruction and kinetic parameter estimation.”  
Now a Staff Modeling Scientist at Quantcast.

PROFESSIONAL SOCIETIES

- **National Academy of Inventors**, Member
- **International Society for Magnetic Resonance in Medicine**, Member
- **Institute of Electrical and Electronics Engineers**, Senior Member
- **IEEE Engineering in Medicine and Biology Society**, Senior Member
- **IEEE Signal Processing Society**, Senior Member

## SERVICE

### Technical Committees:

- Member (Elected Position), Computational Imaging Technical Committee (CI TC), IEEE Signal Processing Society, 2016-2018,2019-2021. (This was a Special Interest Group when I first joined, and was elevated to a Technical Committee in 2018)
  - Chair, Nominations and Elections Subcommittee, 2017-Present.
  - Liaison between the CI TC and the BISP TC, 2017-2019.
- Member (Elected Position), Bioimaging and Signal Processing Technical Committee (BISP TC), IEEE Signal Processing Society, 2014-2016, 2017-2019.
- Associate Member (Elected Position), Bioimaging and Signal Processing Technical Committee (BISP TC), IEEE Signal Processing Society, 2011-2013.
- Member, USC Dana & David Dornsife Cognitive Neuroscience Imaging Center Technical Committee

### Awards Committees:

- Member, APSIPA Annual Summit & Conference Awards Committee, 2012
- Member, IEEE ISBI Best Student Paper Selection Committee, 2013
- Member, USC ECE Fellowship Committee (SIPG representative), 2014, 2020, 2021
- Member, USC Ming Hsieh Institute Ph.D. Scholar Evaluation Committee, 2012
- Member, USC Electrical Engineering Research Festival Judging Committee, 2012, 2013, 2014, 2015, 2016, 2019

### Organizing Committees:

- ISMRM Annual Meeting Program Committee Member 2020-2022
  - Educational Table Chair (Acquisition), ISMRM 2022
- IMA Workshop on Computational Imaging, Institute for Mathematics and its Applications, University of Minnesota, 2019 (with S. Chan, J. Fessler, U. Kamilov, S. Ravishankar, R. Willett, and B. Wohlberg)
- Special Session on “Modeling, Optimization, and Machine Learning for Computational Imaging,” Asilomar Conference on Signals, Systems, and Computers 2019 (with S. Ravishankar)
- USC Brain and EE minisymposium, 2015 (with R. Leahy)
- USC Ming Hsieh Distinguished Lecturer Series, 2013-2014 (with K. Chugg, B. Reichardt, P. Bogdan, and P. Georgiou)
- USC Speech MRI Summit, 2014 (with K. Nayak, S. Narayanan, S. Lee, and R. Leahy)
- Special Session on “Biomedical Image Acquisition, Reconstruction, and Quantitation,” APSIPA Annual Summit & Conference 2012 (with R. Leahy and K. Nayak)
- USC Medical Imaging Seminar Series, Fall 2012-Present (with R. Leahy, K. Nayak, and H. Hu)

### Session Moderator at International Conferences:

- Allerton Conference on Communication, Control, and Computing 2009
- Annual Conference of the IEEE Engineering in Medicine and Biology Society 2010
- APSIPA Annual Summit & Conference 2012
- Asilomar Conference on Signals, Systems, and Computers 2019
- IEEE International Conference on Image Processing 2021
- IEEE International Symposium on Biomedical Imaging 2012, 2013, 2018, 2020
- International Society for Magnetic Resonance in Medicine Annual Meeting 2013, 2014, 2015, 2016 (two sessions), 2017, 2020, 2021

### Editorial Service:

- Associate Editor for IEEE Transactions on Medical Imaging, 2014-Present

- Associate Editor for IEEE Transactions on Computational Imaging, 2018-Present
- Editorial Board Member, Physics in Medicine and Biology, 2016-Present
- ISMRM Annual Meeting Program Committee Member 2020-2022
- Area Chair for IEEE International Conference on Image Processing (ICIP) 2014, 2016, 2018, 2020, 2021
- Area Chair for IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2017, 2019

#### Awards for Service:

- 2019 Outstanding Editorial Board Award, IEEE Signal Processing Society, “for outstanding editorial board service for the IEEE Transactions on Computational Imaging”
- Distinguished Reviewer for IEEE Transactions on Medical Imaging 2020
- Distinguished Reviewer for Magnetic Resonance in Medicine 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019
- Distinguished Reviewer for the Journal of Magnetic Resonance Imaging 2016
- Recognized Reviewer for IEEE International Symposium on Biomedical Imaging 2015

#### Journal Reviewing:

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| <ul style="list-style-type: none"> <li>• ACM Computing Surveys</li> <li>• Analytical Chemistry</li> <li>• Biomedical Signal Processing and Control</li> <li>• Computerized Medical Imaging and Graphics</li> <li>• Computers in Biology and Medicine</li> <li>• Concepts in Magnetic Resonance Part A</li> <li>• Concepts in Magnetic Resonance Part B</li> <li>• Europhysics Letters</li> <li>• IEEE/ACM Transactions on Computational Biology and Bioinformatics</li> <li>• IEEE Journal of Selected Topics in Signal Processing</li> <li>• IEEE Signal Processing Letters</li> <li>• IEEE Signal Processing Magazine</li> <li>• IEEE Transactions on Biomedical Engineering</li> <li>• IEEE Transactions on Computational Imaging</li> <li>• IEEE Transactions on Image Processing</li> <li>• IEEE Transactions on Information Technology in Biomedicine</li> <li>• IEEE Transactions on Information Theory</li> <li>• IEEE Transactions on Medical Imaging</li> <li>• IEEE Transactions on Signal Processing</li> <li>• International Journal of Biomedical Imaging</li> <li>• Journal of Magnetic Resonance</li> <li>• Journal of Magnetic Resonance Imaging</li> </ul> | <ul style="list-style-type: none"> <li>• Journal of Neuroscience Methods</li> <li>• Journal of Parallel and Distributed Computing</li> <li>• Magnetic Resonance in Medicine</li> <li>• Medical Image Analysis</li> <li>• Medical Physics</li> <li>• Neurocomputing</li> <li>• NeuroImage</li> <li>• NMR in Biomedicine</li> <li>• Optics Express</li> <li>• Parallel Computing</li> <li>• Physics in Medicine and Biology</li> <li>• PLOS ONE</li> <li>• Proceedings of the IEEE</li> <li>• Proceedings of the National Academy of Sciences of the United States of America (PNAS)</li> <li>• Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</li> <li>• Recent Patents on Biomedical Engineering</li> <li>• Scientific Reports</li> <li>• SIAM Journal on Imaging Sciences</li> <li>• Signal, Image and Video Processing</li> <li>• Signal Processing</li> </ul> |
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#### Grant Reviewing:

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| <ul style="list-style-type: none"> <li>• Early Career Reviewer program at the Center for Scientific Review, National Institutes of Health (NIH)</li> <li>• NIH Biomedical Imaging Technology Study Section A (BMIT A), ad hoc reviewer (09/2016, 02/2017).</li> <li>• NSF Communications and Information Foundations (CIF), Signal Processing Systems Image and Multidimensional Signal Processing (IMDSP) Panel (ad hoc reviewer)</li> <li>• NSF Information and Intelligent Systems (IIS), Information Integration and Informatics (III) Panel (ad hoc reviewer)</li> <li>• NSF Experimental Program to Stimulate Competitive Research (EP-SCoR), Research Infrastructure Improvement (RII) Panel (ad hoc reviewer)</li> </ul> | <ul style="list-style-type: none"> <li>• NSF Communications, Circuits and Sensing Systems (CCSS), Excellence in Research Projects (EIR) Panel (ad hoc reviewer)</li> <li>• Saban Research Institute Inspire Innovation Program (ad hoc reviewer)</li> <li>• Southern California Clinical and Translational Science Institute (SC-CTSI) Technology Awards (ad hoc reviewer)</li> <li>• Israeli Ministry of Science, Technology and Space (ad hoc reviewer)</li> <li>• U.S.-Israel Binational Science Foundation (ad hoc reviewer)</li> <li>• Deutschen Forschungsgemeinschaft (ad hoc reviewer)</li> <li>• Netherlands Organisation for Scientific Research (ad hoc reviewer)</li> <li>• Wellcome Trust (ad hoc reviewer)</li> <li>• Wright Foundation Grant Program (ad hoc reviewer)</li> </ul> |
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#### Conference Reviewing:

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| <ul style="list-style-type: none"> <li>• IEEE Engineering in Medicine and Biology Conference (EMBC)</li> <li>• IEEE Global Conference on Signal and Information Processing (GlobalSIP)</li> <li>• IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)</li> <li>• IEEE International Conference on Image Processing (ICIP)</li> <li>• IEEE International Symposium on Biomedical Imaging (ISBI)</li> <li>• IEEE International Symposium on Information Theory (ISIT)</li> </ul> | <ul style="list-style-type: none"> <li>• IEEE International Symposium on Circuits and Systems (ISCAS)</li> <li>• International Society for Magnetic Resonance in Medicine Annual Meeting and Exhibition (ISMRM)</li> <li>• International Conference on Information Processing in Medical Imaging (IPMI)</li> <li>• International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)</li> <li>• Medical Imaging with Deep Learning (MIDL)</li> <li>• Organization for Human Brain Mapping Annual Meeting (OHBM)</li> </ul> |
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**Public Education:**

- Scientific consultant and on-screen expert, “How to Build...Everything” television series, Season 1, Episode 12 (“Rocketship Revealed”). Premiered on the Discovery Science Channel on November 7th, 2016.  
<https://www.imdb.com/title/tt6233626/>
- Contributor of scientific visualizations, Permanent Exhibition on “Your Brain,” Franklin Institute Science Museum in Philadelphia. On display from June 2014-Present.
- Instructor, “Magnetic Resonance Imaging: A Glimpse Inside,” Welcome Week Micro-Seminar, USC Undergraduate Programs, 2014.
- Faculty Governing Board Member, Body Engineering Los Angeles GK-12 Program, 2013-2015.

**Other Research Education:**

- Educational Table Chair (Acquisition), ISMRM 2022.
- Panelist, “Algorithm Breakdown” Secret Session at the 2017 Annual Meeting of the ISMRM. This session provides a forum where junior researchers have an interactive discussion with three panelists who are experienced in the development, validation, and application of novel MRI-based formulations and algorithms.
- Speaker, UCLA Advanced Neuroimaging Summer Program (NITP), July 2014.
- Speaker, Virtual School of Computational Science and Engineering Summer School 2009: Many-Core Processors for Science and Engineering Applications
- Intel Graduate Research Mentor, Intel Undergraduate Research Scholars Program, 2006.

**Open-Source Research Software Development:**

- Co-developer of the Illinois Massively Parallel Acceleration Toolkit for Image reconstruction with ENhanced Throughput in MRI (IMPATIENT MRI) ([http://impact.crhc.illinois.edu/mri/mri\\_toolset.aspx](http://impact.crhc.illinois.edu/mri/mri_toolset.aspx), GPU-based Magnetic Resonance Image Reconstruction Software)
- Co-developer of BrainSuite software (<http://brainsuite.org/>, Magnetic Resonance Image Analysis Tools)
- Developer and distributor of MRI reconstruction software (<http://mr.usc.edu/code.html>) and MRI data (<http://mr.usc.edu/data.html>).

**Research Software Training:**

- Co-organizer, BrainSuite Training @ USC, October 2015.
- Speaker, BrainSuite Training @ CHLA, August 2014.
- Speaker, BrainSuite Training @ UCLA, November 2013.
- Speaker, BrainSuite Training @ USC, September 2013.

**SELECTED PRE-2005 ACADEMIC AWARDS AND HONORS**

- **Bronze Tablet Award (University Honors)**, University of Illinois at Urbana-Champaign, Spring 2004.
- **Edmund J. James Scholar Engineering Honors Program**, University of Illinois at Urbana-Champaign, Fall 2000-Spring 2004.
- **James Newton Matthews Scholarship**, University of Illinois at Urbana-Champaign, Fall 2000-Spring 2004.
- **Henry O. Koehler Memorial Scholarship**, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Fall 2003-Spring 2004.
- **Dwight Glasscock Scholarship**, College of Engineering, University of Illinois at Urbana-Champaign, Fall 2003-Spring 2004.
- **McDonnell Memorial Scholarship**, College of Engineering, University of Illinois at Urbana-Champaign, Fall 2002-Spring 2003.
- **Harriet and Robert Perry Scholarship**, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Fall 2002-Spring 2003.
- **Calvin B. Niccols Memorial Scholarship**, College of Engineering, University of Illinois at Urbana-Champaign, Fall 2000-Spring 2002.
- **Award from Accenture and the College of Engineering in recognition of outstanding scholarship, leadership, extra-curricular involvement and professional presence**, University of Illinois at Urbana-Champaign, Spring 2002.