

# CURRICULUM VITAE

WEIHONG GUO (2/13/2019)

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## EDUCATION

- Ph. D. in Applied Mathematics, University of Florida, Gainesville, Florida, May 2007  
**Dissertation: Medical image segmentation and diffusion weighted Magnetic Resonance Image analysis**
- Master in Statistics, University of Florida, Gainesville, Florida, May 2007  
**Thesis: A nonparametric model for simultaneous segmentation and adaptive denoising**
- B. S. in Computational Mathematics, Central University for Nationalities, Beijing, China, 1999  
**Thesis: An algorithm for automatic detection of contact cable of electric railway from digital images**

## PROFESSIONAL APPOINTMENTS

- 07/2015- Associate Professor, Case Western Reserve University, Cleveland, OH
- 07/2015- 07/2016: Associate Professor with title Warren E. Rupp Associate Professor, Case Western Reserve University, Cleveland, OH
- 09/2013--06/2015: tenure track Assistant Professor with title Warren E. Rupp Assistant Professor, Case Western Reserve University, Cleveland, OH.
- 07/2009--06/2015: tenure track Assistant Professor, Case Western Reserve University, Cleveland, OH
- 08/2007--06/2009: tenure track Assistant Professor, The University of Alabama, Tuscaloosa, AL
- 05/2005--08/2005: intern, Siemens Corporate Research Inc., Princeton, NJ
- 02/1999--06/1999: intern, China Academy of Railway Science, Beijing, China

## RESEARCH INTERESTS

- Variational and Partial Differential Equations based image processing and analysis
- Multi-spectral and Hyperspectral imaging
- Computer vision
- Compressive sensing

- Statistical image processing and medical imaging

## PROFESSIONAL AWARDS AND HONORS

- 09/2013-08/2016, Warren E. Rupp professorship.
- 02/2012-06/2013, Case Western Reserve ADVANCE award.
- 08/ 2008-05/2009, University of Alabama Research award.
- 01/2008, UCLA IPAM travel award (supported by NSF).
- 08/2001-08/2005, University of Florida Alumni Fellowship.
- 06/2004, IEEE International Conference on Computer Vision and Pattern Recognition Student Travel Award.
- 08/2003-05/2007, various travel awards from college, department and graduate student council of University of Florida.
- 09/1995-07/1999, various excellent student scholarships from Central University for Nationalities, China.
- 09/1999, privilege to enter the graduate program of Beijing Normal University, waived of the admission test.
- 04/1998, second prize, national college student mathematical modelling contest, Beijing, China.

## PROFESSIONAL SERVICES

### Editorial Service:

- Editorial board member of international journal *Inverse problems and Imaging*, since 2012.
- Guest editor of *International Journal of Biomedical Imaging*, January-December, 2011.

### Scholarly Review:

- Journal of Electronic Imaging (December 2016)
- International Journal for Numerical Methods in Biomedical Engineering (December 2016).
- SIAM Journal on Science Computing (August 2016)
- SIAM Journal on imaging science (December 2017, March 2016)
- International Journal on Computer Vision (March 2016)
- Signal Processing (November 2015)
- IET image processing (September 2015)
- BIT Numerical Mathematics (August 2015, August 2016)
- Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization (March 2014)
- Elsevier Computers and Mathematics with Applications (March 2014)
- Journal of Mathematical Imaging and Vision (July 2018 twice, June 2017, January 2014)
- International Symposium on Biomedical Imaging (November 2013)
- Magnetic Resonance in Medicine (April 2013)
- IEEE Signal Processing Letters (November 2012, December 2012)
- Molecular Based Mathematical Biology (October 2012)
- International Journal of Imaging Systems and Technology (January 2012)
- IEEE Transactions on Biomedical Engineering (July 2012)
- IEEE Transaction on Image Processing (December 2012, October 2011)
- Signal Processing (November 2015, December 2012, November 2012 twice, June 2012,

June 2011)

- BIT Numerical Mathematics (December 2015, June 2013, January 2011)
- Mathematics of Computation (January 2010)
- Inverse Problems and Imaging (April, July, 2019, October and August 2017, September 2013 twice, October 2010, June 2009)
- SIAM journal on Scientific Computing (October 2008)
- Visual Communication and Image Processing (January 2010 twice)
- International Journal of Biomedical Imaging (November 2009)
- International Journal of Tomography and Statistics (June 2009)
- International Symposium on Optical Engineering and Photonic Technology (June 2009)
- International Conference on Scale Space and PDE Methods in Computer Vision (2007)
- International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (2006)
- International Conference on Control, Automation, Robotics and Vision (2006)
- SSVM (February 2017)

### **Conference Organizing:**

- 6/5-6/8, 2018, Bologna, Italy, four-session minisymposium on Image restoration, enhancement and algorithms (co-organized with Xue-cheng Tai, Ke Chen and Guohui Song).
- 5/23-5/26, 2016, Albuquerque, New Mexico, one minisymposium on Image segmentation, classification and applications (co-organized with Xiaoqun Zhang) and one minisymposium on recent developments in image reconstruction and restoration (co-organized with Rodrigo Platte).
- 8/10-8/14, 2015, Beijing, ICIAM, minisymposium on Variational image analysis and applications (co-organized with Jing Qin).
- 5/12-5/14, 2014, Hongkong, SIAM conference on imaging science, *minisymposium on variational PDE and multi-scale multi-directional sparse representation in imaging* (co-organized with Julia Dobrosotskaya).
- 1/15-1/18, 2014, Baltimore, MD, joint mathematical meeting, *SIAM Minisymposium on Recent Mathematical Developments in Imaging* (co-organized with Luminita Vese).
- 5/20-5/22, 2012, Philadelphia, PA, SIAM conference on imaging science, *minisymposium sparse and redundant representations for image reconstruction and geometry extraction*.
- 4/12-4/14, 2010, Chicago, IL, SIAM conference on imaging science, *Mini-symposium Statistical and Probabilistic Methods in Image Analysis and Sampling*
- 3/3-3/4, 2004, Gainesville, FL, Co-organizer of SIAM student workshop.

**Others:** Funding member of SIAM Gator Chapter; treasure of SIAM Gator Chapter 2004

### **Theses Supervised/Supervising at Case Western Reserve University**

- Wei Wan, visiting PhD from Beijing Normal University, China, in progress.
- Richard Lartey, PhD, graduated August 2018. Current placement: Cleveland Clinic Foundation.
- Yue Zhang, PhD, graduated May 2018. Current placement: Siemens Corporate Research.
- Thomas Atta-Fosu, PhD, graduated 2017. Current placement: Intel.
- Benjamin Cowen, BS/MS, May 2015. Current placement: PhD student at NYU.

- Jing Qin, “Prior information guided image processing and compressive sensing”, PhD, graduated May 2013. Current placement: tenure track Assistant Professor at Montana State University.

#### **Undergraduate mentoring at Case Western Reserve University**

- Daniel Kessler, Micaela Richter, Runtian Miao, summer 2018.
- Yuta Hozumi, summer 2017.
- Shugyang Zhang and Peng Zhu, summer 2015.
- Dana Jetter, summer 2013.

#### **Theses Supervised at the University of Alabama**

- Sadeq Damrah, Master’s thesis, May 2009.

#### **RESEARCH SUPPORT**

- Leading Principal Investigator, NSF DMS *Collaborative research: an integrated approach to convex optimization algorithms*, 9/15/2015-8/31/2019.
- Principal Investigator (33% responsibility, with C. Mizutani and R. Sousa-Neves), NIH NIBIB 1R21EB016535-01. *Real-time visualization of neural stem cell transcriptome*. 9/30/2012-8/31/2014.

#### **Patent**

1. **Weihong Guo** and Zhizhou Wang, "*Fast Geometric Flows Based White Matter Fiber Tract Segmentation in DT-MRI*", U.S. 7627155. Dec.1<sup>st</sup>, 2009.

#### **Peer Referred Research Publications**

1. Liang-Jian Deng, Gemine Vivone, **Weihong Guo**, Mauro Dalla Mura, Jocelyn Chanussot, “A Variational Pansharpening Approach Based on Reproducible Kernel Hilbert Space and Heaviside Function”, IEEE transaction on image processing, 28 (9), pp 4330-4344, 2018.
2. Thomas Atta-Fosu, **Weihong Guo**, “Joint Segmentation and Nonlinear Registration Using Fast Fourier Transform and Total Variation”, Research in Shape Analysis, Springer, pp111-132, 2018.
3. **Weihong Guo**, Guohui Song and Yue Zhang, “PCM-TV-TFV: A Novel Two-Stage Framework for Image Reconstruction from Fourier Data”, SIAM Journal on Imaging Sciences, 10(4): pp2250-2274, 2017.
4. Julia Dobrosotskaya, **Weihong Guo**, “A PDE-Free Variational Method for Multi-Phase Image Segmentation Based on Multiscale Sparse Representations”, Journal of Imaging, MDPI, 2017.
5. Liang-Jian Deng, Gemine Vivone, **Weihong Guo**, Mauro Dalla Mura, Jocelyn Chanussot, “A Variational Pansharpening Approach Based on Reproducible Kernel Hilbert Space and Heaviside Function”, Proc. International Conference on Image Processing, 2017.
6. Si Wang, **Weihong Guo**, Ting-Zhu Huang, Garvesh Raskutti, “Image inpainting using reproducing kernel Hilbert space and Heaviside functions”, Journal of Computational and Applied Mathematics, volume 311, issue C, p551-564, 2017.
7. Yue Zhang, Soumya Ray, **Weihong Guo**, “On the Consistency for Feature Selection with

- LASSO for Nonlinear Targets”, Int. Conf. Machine Learning, 2016.
8. Thomas Atta-Fosu, **Weihong Guo**, Dana Jeter, Claudia Mizutani, Nathan Stopczynski, Rui Sousa-Neves, “3D Clumped Cell Segmentation Using Curvature Based Seeded Watershed”, Journal of Imaging, MDPI, 2016.
  9. Liangjian Deng, **Weihong Guo**, Ting-Zhu Huang, “Weighted Single Image Super-Resolution by Approximated Heaviside Functions”, Information Sciences, volume 348 Issue C, Pages 107-123, 2016.
  10. Liangjian Deng, **Weihong Guo**, Ting-Zhu Huang, Xi-Le Zhao, “Heavisde Image Edge Sharpening”, IEEE international workshop on multimedia signal processing, 2015.
  11. Liangjian Deng, **Weihong Guo**, Ting-Zhu Huang, Single image super-resolution via an iterative reproducing kernel Hilbert space method, IEEE Transactions on Circuits and Systems for Video Technology, 2015.
  12. Julia Dobrosotskaya, **Weihong Guo**, “a PDE-free variational model for multiphase image segmentation”, Proc. SPIE 9597, Wavelets and Sparsity XVI, 2015.
  13. Si Wang, **Weihong Guo**, Ting-Zhu Huang, “Weighted total generalized variation for compressive sensing reconstruction”, Proc. Int. Conf. Sampling Theory and Applications (SampTA), p244—248, 2015.
  14. **Weihong Guo**, Jing Qin, and Sibel Tari, “Automatic prior shape selection for image segmentation”, Research in Shape Modeling, Chapter 1: 1-8, Springer (2015).
  15. **Weihong Guo**, Jing Qin, Wotao Yin, “A new detail-preserving regularization scheme”, SIAM J. Imaging Science, 7(2), 1309—1334, 2014.
  16. **Weihong Guo**, Jing Qin, “A geometry guided image denoising scheme”, Inverse Problems and Imaging, 7(2): 499-521, 2013.
  17. **Weihong Guo**, Ming-Jun Lai, “Box spline wavelet frames for image edge analysis, SIAM J. Imaging Science, 6(3), 1553-1578, 2013.
  18. Jing Qin, **Weihong Guo**, “An efficient compressive sensing MR Image Reconstruction Scheme”, Proceedings of International Symposium on Biomedical Imaging, 306-309, 2013.
  19. **Weihong Guo**, Wotao Yin, “Edge guided reconstruction for Compressive Imaging”, SIAM J. Imaging Science, 5(3), 809-834, 2012.
  20. Jun Miao, **Weihong Guo**, Sreenath Narayan, David L. Wilson, “A simple application of compressed sensing to further accelerate partially parallel imaging”, Magnetic Resonance Imaging, 31(1), 75-85, 2012.
  21. Jing Qin, **Weihong Guo**, “An automatic additive and multiplicative noise removal scheme with sharpness preservation”, Proceedings of International Symposium on Biomedical Imaging, 2011, 1819-1822.
  22. Chuan Li, Qi Hao, **Weihong Guo**, Fei Hu, “Compressive neural activity detection with fMR images using Graphical Model Inference”, International Journal of Computational Biology and Drug Design, 2011, 3(3):187-200.
  23. **Weihong Guo**, Wotao Yin, “*EdgeCS: Edge Guided Compressive Sensing Reconstruction*”, **invited full paper**, Proceedings of SPIE Visual Communication and Image Processing, Vol. 7744, 77440L-1 to 7740L-10, 2010.
  24. Feng Huang, Yunmei Chen, Wotao Yin, Wei Lin, Xiaojing Ye, **Weihong Guo**, Arne Reykowski, “*A rapid and robust numerical algorithm for sensitivity encoding with sparsity constraints: Self-feeding sparse SENSE*”, Magnetic Resonance in Medicine, 2010 Oct; 64(4):1078-88.

25. **Weihong Guo**, Feng Huang, “*Adaptive Total Variation Based Filtering for MRI Images with Spatially Inhomogeneous Noise and Artifacts*”, Proceedings of International Symposium on Biomedical Imaging, 101-104, 2009.
26. Chuan Li, Qi Hao, **Weihong Guo**, Fei Hu, “A Hybrid Approach for Compressive Neural Activity Detection with Functional MR Images”, Proceedings of IEEE Engineering in Medicine and Biology Society, 4787-4790, 2009.
27. **Weihong Guo**, Feng Huang, “*A Local Mutual Information Guided Denoising Technique and Its Application to Self-calibrated Partially Parallel Imaging*”, D. Metaxas et al. (Eds): proceedings of Medical Image Computing and Computer Assisted Intervention, Part II, Lecture notes on Computer Science 5242, 937-947, 2008.
28. **Weihong Guo**, Yunmei Chen, Qingguo Zeng, “*A Geometric Flow Based Approach for Diffusion Tensor Image Segmentation*” Special issue on Mathematical and Statistical Methods for Diagnoses and Therapies, Journal of Philosophical Transaction A: Mathematical, Physical and Engineering Sciences, 366(1874):2279-92, 2008. **Invited cover paper.**
29. Yunmei Chen, **Weihong Guo**, Qingguo Zeng, Yijun Liu, “*A Nonstandard Smoothing in Reconstruction of Apparent Diffusion Coefficient Profiles from Diffusion Weighted Images*”, Journal of Inverse Problems and Imaging (IPI), Volume 2, Number 2, 205-224, 2008.
30. **Weihong Guo**, “*Medical Image Segmentation and Diffusion Weighted Magnetic Resonance Image Analysis*”, dissertation, 2007.
31. **Weihong Guo**, Yunmei Chen, “*Using Non-parametric Kernel to Segment and Smooth Images Simultaneously*”, Proceedings of International Conference on Image Processing (ICIP), 217-220, 2006.
32. **Weihong Guo**, Qingguo Zeng, Yunmei Chen, Yijun Liu “*Reconstruct White Matter Fiber Traces Using Multi-Tensor Deflection in DWI*”, Proceedings of International Symposium on Biomedical Image (ISBI), 69-72, also presented in SIAM'06 Conference on Imaging Science, 2006.
33. Yunmei Chen, **Weihong Guo**, Qingguo Zeng, Xiaolu Yan, Yijun Liu “*Apparent Diffusion Coefficient Approximation and Diffusion Anisotropy Characterization in DWI*”, Proceedings of International Conference on Information Processing in Medical Imaging (IPMI), 246-257. (Acceptance rate < 26%), 2005.
34. Yunmei Chen, **Weihong Guo**, Qingguo Zeng, Xiaolu Yan, Feng Huang, Hongchao Zhang, Guojun He, Baba C. Vemuri, Yijun Liu “*Estimation, Smoothing and Characterization of Apparent Diffusion Coefficient Profiles from High Angular Resolution DWI*”, Proceedings of IEEE computer society conf. on Computer Vision and Pattern Recognition (CVPR), 588-593. (Acceptance rate < 6.5%), 2004.
35. Yunmei Chen, **Weihong Guo**, Qingguo Zeng, Baba C. Vemuri, Yijun Liu “*Recovery of Intra-Voxel Structure from HARD DWI*”, Proceedings of IEEE International Symposium on Biomedical Imaging (ISBI), 1028-1031, 2004.
36. Yunmei Chen, **Weihong Guo**, Feng Huang, David Wilson, A. Geiser “*Using Prior Shape and Points in Medical Image Segmentation*”, Lecture Notes in Computer Science, Proceedings of International Workshop on Energy Minimization Methods in Computer Vision and Patter Recognition (EMMCVPR), 291-305, 2003.

## In Books:

1. Qingguo Zeng, Yunmei Chen, **Weihong Guo**, Yijun Liu, "Recover Multi-tensor Structure from HARD MRI under Bi-Gaussian Assumption", *Multiscale Optimization Methods and Applications*, 379-386, ISBN 0387295496, Springer, 2005.

## In Refereed Abstracts:

1. Yue Zhang, **Weihong Guo**, "A novel fidelity and regularity for image reconstruction", SIAM conference on Imaging Science, 2016.
2. Richard Lartey, **Weihong Guo**, Julia Dobrosotskaya, "Classification of hyperspectral data using Besov norm", SIAM conference on Imaging Science, 2016.
3. Thomas Atta-Fosu, **Weihong Guo**, "Curvature based seeded watershed for clumped object segmentation", SIAM conference on Imaging Science, 2016.
4. **Weihong Guo**, Jing Qin and Wotao Yin, "A new detail-preserving regularity scheme", SIAM conference on Imaging Science, 2014.
5. Yi Wang, **Weihong Guo**, Garvesh Raskutti, Jiyang Sun, "Compressive support detection on multiple hypothesis testing", SIAM conference on Imaging Science, 2014.
6. **Weihong Guo** and Ming-Jun Lai, "Box spline wavelet frames for image edge detection", SIAM conference on Imaging Science, 2012.
7. **Weihong Guo** and Jing Qin, "Robust High Frequency Information Guided Compressive Sensing Reconstruction", SIAM conference on Imaging Science, 2012.
8. **Weihong Guo**, Jing Qin and Wotao Yin, "Edge Guided Compressive Imaging Reconstruction", SIAM conference on Imaging Science, 2010.
9. Jiao Miao, **Weihong Guo**, David Wilson, "Improved Compressed Sensing Reconstruction for Equidistant K-Space by Sampling Decomposition and Its Application in Parallel MR Imaging", ISMRM, p4882, 2010.
10. **Weihong Guo**, Feng Huang, "An Unsupervised Method to Enhance both SNR and Edges for PPI", ISMRM, p4552, 2009.
11. **Weihong Guo**, Feng Huang, "Combine Reconstructions Using Non-local Operator and Its Application in PPI", ISMRM, p4642, 2009.
12. Z. Zhou, **Weihong Guo**, T. Tang et al., "Multiple Fiber Diffusion Anisotropy Analysis", ISMRM, p1429, 2009.
13. **Weihong Guo**, Feng Huang, "Local Mutual Information Guided Denoising for Self-calibrated PPI" Proceedings of the Sixteenth Scientific Meeting and Exhibition of the ISMRM, p.1289, 2008.
14. Qingguo Zeng, **Weihong Guo**, Yunmei Chen, Yijun Liu "White Matter Fiber Tracking Based on Multi-Directional Vector Field" Proceedings of the Thirteenth Scientific Meeting and Exhibition of the ISMRM, p218, 2005.
15. Qingguo Zeng, **Weihong Guo**, Yunmei Chen, Yijun Liu "White Matter Fiber Tracking Based on Multi-Directional Vector Field" 11th Annual Scientific Meeting of the Organization of Human Brain Mapping, Toronto, Canada, p1649, 2005.
16. Yunmei Chen, **Weihong Guo**, Qingguo Zeng, Yijun Liu "Classification of Intra-Voxel Diffusion from HARD MRI" Proceedings of the Twelfth Scientific Meeting and Exhibition of the ISMRM, p252, 2004.

## SCHOLAR PRESENTATIONS AND INVITED TALKS

1. “Intensity Function Estimation and its Applications in Image Super Resolution and Segmentation”, Cleveland Clinic Foundation, February 2019.
2. “Analog Image Estimation and Applications in Multispectral Image Super Resolution”, Central University of Finance and Economics, Beijing, China, June, 2018.
3. “Non-Negative and Non-Local Tensor Dictionary Learning Based Hyperspectral Image Super-Resolution”, Beijing Normal University, Beijing, China, June, 2018.
4. “Analog Image Estimation and Applications in Multispectral Image Super Resolution”, Nankai University, Tianjin, China, June, 2018.
5. “Non-Negative and Non-Local Tensor Dictionary Learning Based Hyperspectral Image Super-Resolution”, International Workshop on Signal Processing, Optimization and Control, Nanjing University, China, June, 2018.
6. “Analog Image Estimation and Applications in Multispectral Image Super Resolution”, University of Munich, Munich, Germany, June, 2018.
7. “A Distributed Dictionary Learning and Its Applications”, SIAM conference on Imaging Sciences, Balogna, Italy, June, 2018.
8. “Analog Image Estimation and Applications in Multispectral Image Super Resolution”, Liverpool University, Liverpool, UK, May, 2018.
9. “Joint Segmentation and Nonlinear Registration Using Fast Fourier Transform and Total Variation”, Isaac Newton Institute, University of Cambridge, UK, December 2017.
10. “Analog Image Estimation and Applications in Image Reconstruction and Enhancement”, Technical University of Denmark, November 2017.
11. “Image Super Resolution and Fusion with Applications in Multispectral Imaging”, Wright Brothers Institute, Dayton, Ohio, September 2017.
12. “Mathematical Image Processing and Reconstruction”, Beijing Normal University, China, June 2017.
13. “Single Image Super Resolution and its Applications in Multispectral Imaging”, Tsinghua University, China, June 2017.
14. “Single Image Super Resolution and its Applications in Multispectral Imaging”, University of Science and Technology of China, January 2017.
15. “Effectiveness of Prior Information in Image Processing and Reconstruction”, University of Electronic Science and Technology of China, December 2015.
16. “Single Image Super-resolution by Reproducible Kernel Hilbert Space and Heaviside Function”, UCLA, November, 2015.
17. “Single Image Super-resolution by Reproducible Kernel Hilbert Space and Heaviside Function”, International Workshop on Signal Processing, Optimization and Control, Guangzhou, China, December 2015.
18. “Single Image Super-resolution based on Approximated Heaviside Functions ”, Hangzhou, China, August 2015.
19. “A PDE-free Variational Model for Multiphase Image Segmentation”, ICIAM, Beijing, China, August 2015.
20. “Variational Methods in Image Reconstruction and Processing”, Min Zu University, China, July 2015.
21. “Total Generalized Variation and Shearlet Transform in Image Reonstruction”, Beijing Normal University, China, July 2015.
22. “Efficient Regularization Approaches for Image Reconstruction and Analysis”, Arizona State University, January, 2014.
23. “A New Detail-preserving Regularity Scheme”, Joint mathematical meeting, Baltimore, MD, January, 2014.
24. “A convex relaxation segmentation scheme based on shearlets”, Joint mathematical meeting,

- Baltimore, MD, January, 2014.
25. “*Compressive inference*”, Joint Statistical Meetings, Montreal, Canada, August, 2013.
  26. “*Compressive inference*”, SAMSI workshop on Statistical and Computational Methodology for Massive Datasets, RTP, NC, April, 2013.
  27. “*Effectiveness of Using Prior Information in Compressive Sensing and Image Denoising*”, MBI workshop on Mathematical Challenges in Biomolecular/Biomedical Imaging and Visualization, Columbus, OH, February, 2013.
  28. “*Robust high frequency information guided compressive sensing reconstruction*”, SIAM conference on Imaging Sciences, Philadelphia, PA, May 20-22, 2012.
  29. “*Sparse feature and image reconstruction from sparse measurements*”, invited talk at SPIE Wavelets and Sparsity XIV, San Diego, California, August, 2011.
  30. “*Edge Guided Compressive Sensing Reconstruction*”, invited talk at the Second Midwest Conference on Mathematical Methods for Images and Surfaces, Michigan State University, August, 2011.
  31. “*Edge Guided Compressive Imaging Reconstruction*”, invited talk at International Conference in Visual Communication and Image Processing, HuangShan, China, July, 2010.
  32. “*Efectiveness of Using Edge Information in Compressive Sensing and Image Denoising*”, invited talk at Department of Mathematics, Beijing Normal University, China, July, 2010.
  33. “*Edge Guided Compressive Imaging Reconstruction*”, at Society of Industry and Applied Mathematics Imaging Science conference, Chicago, IL, April, 2010.
  34. “*Mathematical Approaches on Some Image Processing and Analysis Problems*”, Cleveland State University, Department of Mathematics Colloquium, September, 2009
  35. “*An Unsupervised Adaptive Non-local Means Filter to Remove Inhomogeneous Noise and Artifact*”, the IMACS World Congress, Computational and Applied Mathematics and Applications in Science and Engineering, Athens, GA, August, 2009
  36. “*Adaptive Total Variation Based Filtering for MRI Images with Spatially Inhomogeneous Noise and Artifacts*”, International Symposium on Medical Imaging , Boston, MA, June 2009
  37. “*Use Patch Information to Remove Noise and Artifacts from Medical Images*”, at Applied Mathematics Seminar of University of Georgia, Athens, GA, April 2009
  38. “*An Unsupervised Adaptive Non-local Means Filter for Partially Parallel Magnetic Resonance Images*”, at Ulam Centennial conference, Gainesville, FL, March 2009
  39. “*Denoising by Unsupervised Non-local Means*”, at colloquium of Computational and Applied Mathematics department at Rice University, Houston, TX, December, 2008.
  40. “*A Local Mutual Information Guided Denoising Technique and Its Application to Self-calibrated Partially Parallel Imaging*”, at International Conference on Medical Image Computing and Computer Assisted Intervention, New York City, NY, September, 2008.
  41. “*On the improvement of Total Variation Regularization and Its Application on Partially Parallel Imaging*” at Society of Industry and Applied Mathematics Imaging Science conference, San Diego, CA, July, 2008.
  42. “*Local Mutual Information Guided Image Enhancement*” at Mathematics Department of the University of Alabama at Birmingham, Birmingham, AL, April, 2008.
  43. “*LMI-denoiser: A Local Mutual Information Guided Denoising Technique for Self-calibrated Partially Parallel Imaging*” at Mathematics Department of the University of Alabama Tuscaloosa, AL, December 2007.
  44. “*Statistical methods for image registration and segmentation*” at Mechanics Engineering department of the University of Alabama at Birmingham, Birmingham, AL, October 2007.
  45. “*A Nonparametric Scheme for Simultaneous Image Segmentation and Smoothing*” at University of Alabama System Joint Applied Mathematics 2007 Annual Meeting, Tuscaloosa, AL, October 2007.
  46. “*Using Non-parametric Kernel to Segment and Smooth Images Simultaneously*” at

- International Conference on Image Processing, Atlanta, Georgia, November 2006.
47. *“Reconstruct White Matter Fiber Traces Using Multi-Tensor Deflection in DWI”*, at International Symposium on Biomedical Image, Arlington, Virginia, April 2006.
  48. *“Estimation, Smoothing and Characterization of Apparent Diffusion Coefficient Profiles from High Angular Resolution DWI”* at IEEE computer society conference on Computer Vision and Pattern Recognition, Washington D. C. June 2006.
  49. *“Apparent Diffusion Coefficient Approximation and Diffusion Anisotropy Characterization in DWI”*, at International Conference on Information Processing in Medical Imaging, Glenwood Springs, Colorado, July 2005.
  50. *“Recovery of Intra-Voxel Structure from HARD DWI”*, at IEEE International Symposium on Biomedical Imaging, Arlington, Virginia, April 2004.
  51. *“Recover Multi-tensor Structure from HARD MRI under Bi-Gaussian Assumption”*, SIAM student workshop, Gainesville, FL, March 2004.