Hui Ji — Curriculum Vitae

Academic address
Department of Mathematics
National University of Singapore
Singapore 119076

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Research Interest

Wavelets, Imaging Science, Machine Learning, and Computational Vision

Research Profile

- Google Scholar: https://scholar.google.com/citations?user=AsKY0XoAAAAJ&hl=en&oi=ao
- ORCID: 0000-0002-1674-6056
- Web of Science ResearcherID: C-5107-2016

Education

- *Ph.D.* in Computer Science, University of Maryland at College Park, USA 06/2006
- *M.Sc.* in Applied Mathematics, National University of Singapore, Singapore 07/1998
- *B.Sc.* in Mathematics, Nanjing University, China 07/1993

Professional Experience

- *Director*, Centre for Data Science and Machine Learning, NUS 07/2024 –
- *Professor*, Department of Mathematics, NUS, 07/2023 –
- *Deputy Director*, Centre for Data Science and Machine Learning, NUS 01/2021 – 06/2024
- *Director*, Centre for Wavelets, Approximation and Information Processing, NUS, 01/2014 – 12/2020
- *Associate Professor*, Department of Mathematics, NUS, 07/2012 – 06/2023
- *Assistant Professor*, Department of Mathematics, NUS, 07/2006 – 06/2012

Award and Prize

- *Dean's Chair Associate Professorship*, NUS, 07/2015 – 06/2018
- *Young Scientist Award*, Faculty of Science, NUS, 10/2010

Editorial Service

- *Associate Editor*, SIAM Journal on Imaging Sciences, Society for Industrial and Applied Mathematics (SIAM), 01/2023 –
- *Editorial Board Member*, Inverse Problem and Imaging, American Institute of Mathematical Sciences (AIMS), 01/2016 –
- *Area Chair*, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2015, 2023, 2024

Service to International Academic Organizations

- *Executive committee member*, Society for Industrial and Applied Mathematics (SIAM)–East Asia Section, 2014 –

University Service

- Director of the Master's Program in Data Science and Machine Learning (DSML), 2023 –
- Member of Search Committee, 2016 – 2023, 2024 –
- Deputy director for the Master's Program in Data Science and Machine Learning (DSML), 2020 – 2023
- Committee member for Undergraduate Program in Data Science and Analytics (DSA), 2018 – 2020
- Member of Research Committee, 2014 – 2019
- Deputy director of Graduate Programs Committee, 2013 – 2016
- Member of FYP and UROPS Committee, 2012 – 2014

Program/Workshop Organization Committee

- Organization Committee Member, SIAM Conference on Imaging Science (IS24), Atlanta, 28/05/2024 – 31/05/2024
- Co-Chair, The Program on Machine Learning and Its Application, Institute of Mathematical Science (IMS), Singapore, 10/10/22 – 28/10/22
- Co-Chair, The Workshop on Machine Learning for CryoEM, Institute of Mathematical Science (IMS), Singapore, 16/09/22 – 23/09/22
- Co-Chair, The Workshop on Data Science, Institute of Mathematical Science (IMS), Singapore, 17/05/21 – 19-05-21
- Co-Chair, The Program on Data Sciences: Bridging Mathematics, Physics and Biology, Institute of Mathematical Science (IMS), Singapore, 29/05/17 – 16/06/17
- Co-Chair, The Workshop on Mathematics of Shapes and Applications, Institute of Mathematical Science (IMS), Singapore, 18/07/16 – 22/07/16

Invited Conference/Workshop Talk

- Invited Talk, Forum on Inverse Problems and Image Processing, Hohhot, China, 08/2024
- Invited Talk, International Conference on Applied Mathematics, City University of Hong Kong, Hong Kong, 05/2024
- Invited Talk, International Workshop on Image Processing and Machine Learning, Tsinghua University, China, 03/2024
- Invited Talk (Online), One World MINDS Seminar Series, Society for Industrial and Applied Mathematics (SIAM), USA, 11/2023
- Invited Talk (Online), *Mini-symposium at 10-th International Congress on Industrial and Applied Mathematics* (ICIAM'23), Tokoyo, Japan, 08/2023.
- Invited Talk, *Mini-symposium at SIAM Conference on Computational Science and Engineering* (SIAM-CSE23), Amsterdam, 03/2023
- Invited Talk (Online), *International Conference of Union of Mathematical Imaging*, Nankai University, China, 10/2022
- Invited Talk (Online), *The Workshop on Recent Advances in Image Processing,*, Shenzhen Research Institute of Big Data, Shenzhen, China, 04/2022

- Keynote Talk (Online), *2021 SEG 4th International Workshop on Mathematical Geophysics: Traditional and Learning,* Virtual, Society of Exploration Geophysicists (SEG), Organized by Peking University, China, 12/2021
- Invited Talk (Online), Bi-weekly Joint Seminar series of Machine Learning, jointly organized by five universities in China: Peking University, Tsinghua University, Fudanniversity, University of Science and Technology of China, and Shanghai Jiaotong University, 08/2021
- Invited Talk (Online), *The Workshop on Machine Learning & Scientific Computing*, Wuhan University, China, 08/2021
- Invited Talk (Online), *Joint workshop on Mathematical Finance, Machine Learning and Statistics*, NUS and Shanghai Jiaotong University, 06/2021
- Invited Talk (Online), *One World Seminar Series in Imaging and Inverse Problem (IMAGINE)*, Society for Industrial and Applied Mathematics (SIAM), USA, 03/2021
- Invited Talk (Online), *The Workshop on Mathematical Machine Learning and Application*, Penn State University at University Park, USA, 12/2020
- Invited Talk (Online), *International Conference of Union of Mathematical Imaging*, Nankai University, China, 11/2020
- Invited Talk, The Workshop on Foundations of Computational Science, Harvard University, USA, 08/2019 (Not attending due to visa issue)
- Invited Talk, *International Workshop on Recent Advances on Mathematical Imaging and Data Science*, Shanghai Jiaotong University, China, 07/2019
- Invited Talk, *International Conference on Computational Harmonic Analysis and Statistical Learning*, Nanjing, China, 05/2019
- Invited Talk, *International Workshop on Approximation Theory and Methods*, Sun Yat-sen University, China, 12/2018
- Invited Talk, *International Symposium on Computational Harmonic Analysis*, Behang University, China, 06/2018
- Invited Talk, *From Approximation Theory to Real World Applications Workshop*, Tsinghua Sanya International Mathematics Forum, China, 12/2017
- Invited Talk, *International Workshop on Computational Harmonic Analysis*, Nankai University, China, 06/2017
- Invited Talk, *The workshop on Optimization in Scientific Computing*, The Chinese University of Hong Kong, Hong Kong, 06/2017
- Invited Talk, *International Conference on Mathematical Approximation Approaches in Data Science,* Zhejiang University, China 12/2016
- Invited Talk, *The Workshop On Mathematics in Imaging Science and Data Analysis*, Peking University, China, 08/2016
- Invited Talk, *Global Alliance: Smart Systems Workshop*, University of Cambridge, UK, 07/2016.
- Plenary Talk, *The International Conference on Inverse Problems and Related Topics*, Seoul, South Korea, 06/2016
- Invited Talk, *Mini-Symposium at SIAM Conference on Imaging Science* (SIAM-IS16), New Mexico, USA, 05/2016
- Invited Talk, *International Conference on Image Processing: Theory, Method and Applications*, Shanghai Jiaotong University, China, 05/2016
- Invited Talk, *International Workshop on Signal Processing, Optimization, and Compressed sensing*, Sun Yat-sen University, China, 12/2015
- Invited Talk, *Mini-symposium at the International Congress on Industrial and Applied Mathematics*, Beijing, 08/2015

- Invited Talk, *Mini-symposiuam at the 9th international Conference on Computational Physics*, Institute for Mathematical Sciences, Singapore, 01/2015
- Invited Talk, *Mini-Symposium at SIAM Conference on Imaging Science* (SIAM-IS14), Hong Kong Baptist Univerisity, Hong Kong, 05/2014
- Invited Talk, *The second Guangzhou International Workshop on Mathematical Imaging*, Sun Yat-sen University, China 12/2013
- Plenary Talk, *The Sixth Pacific Rim Conference on Mathematics*, Hokkaido, Japan, 07/2013
- Invited Talk, *The first ChongQing Workshop on Computational and Applied Math*, Chongqing University, China, 06/2013
- Invited Talk, *The Imaging Science, a conference dedicated to Professor Stanley Osher*, Tsinghua University, China, 12/2012
- Invited Talk, *The Int. workshop on Recent Advances in Scientific and Engineering Computing*, Shanghai Jiaotong University, China, 10/2012
- Invited Talk, *The IMS-IMI Joint Workshop on Mathematics for Industry* Institute for Mathematical Sciences, Singapore, 09/2012
- Invited Talk, *The Workshop on Mathematics for Defence*, National University of Singapore, Singapore, 04/2012
- Invited Talk, *The 2011 International Workshop on Recent Advances in Biomedical imaging*, Shanghai Jiaotong University, China, 08/2011
- Invited talk, *The 7th East Asia SIAM Conference*, Waseda University, Japan, 06/2011
- Invited talk, *The International Conference on mathematical methods for images*, Sun Yat-sen University, China, 08/2010
- Invited Talk, *The Fifth Pacific Rim Conference of Mathematics*, Stanford University, USA, 07/2010
- Invited Talk, *The Workshop on Mathematical Aspect of Data Science*, Fudan University, China, 05/2010
- Invited Talk, *The Workshop on Advanced Mathematics*, National University of Singapore, Singapore, 02/2010
- Invited Talk, *The Workshop on Mathematical Imaging and Digital media*, Institute for Mathematical Sciences, Singapore, 06/2008
- *The 3th Chinese-French-Singaporean Joint Workshop on Wavelet Theory and Applications*, NUS, Singapore 06/2008
- Invited Talk, *The Symposium on Wavelet Methods in Mathematics Analysis and Engineering*, Sun Yat-sen University, China, 08/2007

Research Grant

- PI, *Test-time Deep Model Adaptation for video restoration in band-limited environments* 2024
  Singapore DSO National Laboratories Research Fund
- PI, *Self-supervised Deep Learning for Inverse Problems in Imaging* 2023-2025
  Singapore MOE Tier 1 Academic Research Fund
- PI, *Unsupervised Deep Video Restoration in Band-limited Environments* 2022-2023
  Singapore DSO National Laboratories Research Fund
- PI, *Interpretable Deep Learning and its Applications in Image Reconstruction/Recovery* 2020-2023
  Singapore MOE Tier 1 Academic Research Fund
- Co-PI, *Data-driven approach to inverse problem of light transport in turbid media* 2020-2023
  Singapore MOE Tier 2 Academic Research Fund

- Co-PI, *Neural Network based Learning for Prediction of Dementia Subtypes* 2018–2021
  Joint NUS-PKU research programme on data science
- PI, *A data-driven approach to blind image restoration and applications in navigation* 2018–2021
  Singapore MOE Tier 2 Academic Research Fund
- PI, *Dictionary learning for big data* 2017-2020
  Singapore MOE Tier 1 Academic Research Fund
- PI, *Mathematical and statistical theory of imaging* 2017-2018
  Global Alliance Programme of Cambridge, UC Berkeley and NUS
- Co-PI, *Magnetoencephalography (MEG) inverse problem* 2017-2020
  Singapore MOE Tier 2 Academic Research Fund
- Co-PI, *Modeling Protein-Protein Interactions Using a Novel Knowledge-based Potential* 2014-2017
  Singapore MOE Tier 2 Academic Research Fund
- Co-PI, *An integrated framework to study the dynamics of biological structures* 2013–2018
  Singapore MOE Tier 3 Academic Research Fund (Totally
- PI, *Optimal dimensionality reduction for hyperspectral data* 2013–2015
  Singapore DSO National Laboratories Research Fund
- PI, *Compressed sensing and its applications in imaging and surveillance* 2012–2015
  Singapore MOE Tier 1 Academic Research Fund
- Co-PI, *Sparse approximation based restoration for cryo-EM images* 2012–2014
  Singapore MOE Tier 2 Academic Research Fund
- PI, *Theory and computation of blind motion deblurring* 2009–2012
  Singapore MOE Tier 1 Academic Research Fund
- PI, *Autonomous navigation by visual sensors* 2006–2009
  New Faculty Start-up Research Fund, National University of Singapore

Publication List

Published/Accepted Journal publication

73. Yuhui Quan, Xin Yao, Zhifeng Chen, Hui Ji, Phase unwrapping via fully exploiting global and local spatial dependencies, *Optics and Laser Technology*. In Press, 2024
72. Yuhui Quan, Zicong Wu, Ruotao Xu, and Hui Ji, Deep single image defocus deblurring via Gaussian kernel mixture learning, *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**IEEE TPAMI**), In Press, 2024.
71. Yuhui Quan, Xi Wan, Tianxiang Zheng, Yan Huang and Hui Ji, Dual-path deep unsupervised learning for multi-focus image fusion, IEEE Transactions on Multimedias (**TMM**), In Press, 2024
70. Yong Xu, Xin Yao, Baoling Liu, Yuhui Quan, and Hui Ji, Text-guided portrait image matting, *IEEE Transactions on Artificial Intelligence* (**IEEE TAI**), In Press, 2024.
69. Yuhui Quan, Xinran Qin, Tongyao Pang, and Hui Ji, Siamese cooperative learning for unsupervised image reconstruction from incomplete measurements, *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**IEEE TPAMI**), 46(7), 4866-4879, July, 2024.
68. Xinran Qin, Yuhui Quan, and Hui Ji, Enhanced Deep Unrolling Networks for Snapshot Compressive Hyperspectral Imaging, *Neural Networks*, 174, 106250, Jun., 2024.
67. Zhen Yu Gordon Ko, Yang Li, Jiulong Liu, and Hui Ji, Anqi Qiu, Nanguang Che, DOTnet 2.0: Deep Learning Network for Diffuse Optical Tomography Image Reconstruction, *Intelligence-Based Medicine*, 9, 100133, 2024.
66. Ji Li, Weixi Wang, and Hui Ji, Self-supervised deep learning for image reconstruction: A Langevin Monte Carlo approach, *SIAM Journal on Imaging Sciences* (**SIAM SIIMS**), 16(4), 2247-2284, 2023

65. Yuhui Quan, Xiaoheng Tan, Yan Huang, Yong Xu, and Hui Ji, Image desnowing via deep invertible separation, *IEEE Transactions on Circuits and Systems for Video Technology* (**IEEE TCSVT**), 33(7), 3133–3144, Jul., 2023

64. Mingqin Chen, Yuhui Quan, Yong Xu, and Hui Ji, Self-supervised blind image deconvolution via deep generative ensemble learning, *IEEE Transactions on Circuits and Systems for Video Technology* (**IEEE TCSVT**), 33(2), 3634–647, Feb. 2023

63. Jinxiu Liang, Yuhui Quan, Yong Xu, Boxin Shi, and Hui Ji, Self-Supervised low-Light image enhancement using discrepant untrained network priors, IEEE Transactions on Circuits and Systems for Video Technology (**IEEE TCSVT**), 32(11), 7332–7345, Nov., 2022

62. Yuhui Quan, Peikang Lin, Yong Xu, Yuesong Nan, and Hui Ji, Non-Blind image deblurring via deep learning in complex field, *IEEE Transactions on Neural Networks and Learning Systems* (**IEEE TNNLS**), 33(10), 5387-5400, Oct., 2022

61. Qiaoqiao Ding, Hui Ji, and Xiaoqun Zhang, A dataset-free deep learning method for low-dose CT image reconstruction, *Inverse problems* (**IP**), 38, 104003, 2022

60. Weixi Wang, Ji Li and Hui Ji, ℓ_1-norm regularization for short-and-sparse blind deconvolution: Point source separability and region selection, *SIAM Journal on Imaging Sciences* (**SIAM SIIMS**), 15(3), 1345-1372, 2022

59. Yong Xu, Baoling Liu, Yuhui Quan, and Hui Ji, Unsupervised deep background matting using deep matte prior, *IEEE Transactions on Circuits and Systems for Video Technology* (**IEEE TCSVT**), 32(7), 4324-4337, 2022

58. Mingqin Chen, Peikang Lin, Yuhui Quan, Tongyao Pang, and Hui Ji, Unsupervised phase retrieval using a deep approximate MMSE estimator, *IEEE Transactions on Signal Processing*, (**IEEE TSP**), 70, 2239-2252, May, 2022.

57. Mingqin Chen, Yuhui Quan, Tongyao Pang, and Hui Ji, Non-blind Image Deconvolution via Leveraging Model Uncertainty in An Untrained Deep Neural Network, *International Journal of Computer Vision* (**IJCV**), 130, 1770–1789, July, 2022

56. Ji Li, Yuesong Nan and Hui Ji, Un-supervised learning for blind image deconvolution via Monte-Carlo sampling, *Inverse Problems* (**IP**), 38(3), 035012, Feb. 2022

55. Qiaoqiao Ding, Yuesong Nan, Hao Gao, and Hui Ji, Deep Learning with Adaptive Hyper-parameters for Low-Dose CT Image Reconstruction, *IEEE Transactions on Computational Imaging*, (**IEEE TCI**), 7, 648-660, Jun., 2021

54. Yuhui Quan, Huan Teng, Yixin Chen, and Hui Ji, Watermarking deep neural networks in image processing, *IEEE Transactions on Neural Networks and Learning Systems* (**IEEE TNNLS**), 32(5), 1852-1865, May, 2021

53. Yong Xu, Ye Zhu, Yuhui Quan, and Hui Ji, Attentive deep network for blind motion deblurring on dynamic scenes, *Computer Vision and Image Understanding* (**CVIU**), 205, 103169, April, 2021

52. Jiulong Liu, Angelica I Aviles-Rivero, Hui Ji, and Carola-Bibiane Schonlieb, Rethinking Medical Image Reconstruction via Shape Prior, Going Deeper and Faster: Deep Joint Indirect Registration and Reconstruction, *Medical Image Analysis* (**MedIA**), 68, 101930, 2021

51. Yuhui Quan, Yixin Chen, Yizhen Shao, Huan Teng, Yong Xu, and Hui Ji, Image denoising using complex-valued deep CNN, *Pattern recognition* (**PR**), 111, Mar. 2021

50. Chaoqiang Liu, Hui Ji, and Anqi Qiu, Fast vertex-based graph convolutional neural network and its application to brain images *Neurocomputing*, 434(28), 1–10, 2021

49. Gaoyu Chen, Xiang Hong, Qiaoqiao Ding, Yi Zhang, Hu Chen, Shujun Fu Yunsong Zhao, Xiaoqun Zhang, Hui Ji, Ge Wang, Qiu Huang, and Hao Gao, *AirNet: Fused analytical and iterative reconstruction with deep neural network regularization for sparse-data CT*, Medical Physics, 2020.

48. Jiulong Liu, Nanguang Chen, and Hui Ji, Learnable Douglas-Rachford iteration and its applications in DOT imaging, *Inverse Problem and Imaging*, 14(4), Aug., 2020

47. Hui Ji, Zuowei Shen, and Yufei Zhao, Multi-scale discrete framelet transform for graph-structured signals, *SIAM Journal on Multiscale Modeling and Simulation* (**SIAM MMS**),, 18(3), 1210–1241, Jul., 2020

46. Ruotao Xu, Yong Xu, Yuhui Quan, and Hui Ji, Cartoon-texture image decomposition using orientation characteristics in patch recurrence, *SIAM Journal on Imaging Sciences,* (**SIAM SIIMS**) 13(3), 1179–1210, 2020

45. Qiaoqiao Ding, Gaoyu Chen, Xiaoqun Zhang, Qiu Huang, Hui Ji and Hao Gao, Low-dose CT with deep learning regularization via proximal forward backward splitting, *Physics in Medicine and Biology*, 65(12), Jun., 2020.

44. Yuhui Quan, Jieting Yang, Yixin Chen, Yong Xu, and Hui Ji, Collaborative deep learning for super-resolving blurry text images, *IEEE Transactions on Computational Imaging,* (**IEEE TCI**) 65(12), 125009, Jun., 2020

43. Xuhui Yang, Yong Xu, Yuhui Quan, and Hui Ji, Image denoising via sequential ensemble learning, *IEEE Transactions on Image Processing,* (**IEEE TIP**) 29, 5038-5049, Mar., 2020

42. Yan Huang, Yuhui Quan, Yong Xu, R. Xu, and Hui Ji, Removing reflection from a single image with ghosting effect *IEEE Transactions on Computational Imaging* (**IEEE TCI**), 6, 43-45, Feb. 2020

41. Jinxiu Liang, Yong Xu, Chenlong Bao, Yuhui Quan and Hui Ji, Barzilai-Borwein-based adaptive learning rate for deep learning, *Pattern Recognition Letter*, 128(1), 197-203, Dec. 2019

40. Ruotao Xu, Yuhui Quan, Yixin Chen, and Hui Ji, Attention with structure regularization for action recognition, *Computer Vision and Image Understanding* (**CVIU**), 187, 102704, Oct. 2019

39. Chong-Yaw Wee, Chaoqiang Liu, Annie Lee, Joann S.Poh, Hui Ji, and Anqi Qiu, Cortical Graph Neural Network for AD and MCI Diagnosis and Transfer Learning Across Populations, *NeuroImage: Clinical*, 23, 101929. 2019

38. Hui Ji, Zuowei Shen and Yufei Zhao, Digital Gabor filters do generate MRA-based wavelet tight frames *Applied and Computational Harmonic Analysis* (**ACHA**), 47(1), 87-108, Jul. 2019

37. Guanhua Zhu, Wei Liu, Chenglong Bao, Dudu Tong, Hui Ji, Zuowei Shen, Daiwen Yang, and Lanyuan Lu, Investigating energy-based pool structure selection in the structure ensemble modeling with experimental distance constraints: The example from a multidomain protein Pub1, *Proteins: Structure, Function, and Bioinformatics*, 86(5), 501-514, 2018

36. Chenlong Bao, George. Barbastathis, Hui Ji, Zuowei Shen, and Zhengyun Zhang, Coherence retrieval using trace regularization, *SIAM Journal on Imaging Sciences* (**SIAM SIIMS**), 11(1), 679–706, Mar. 2018

35. Hui Ji, Zuowei Shen and Yufei Zhao, Digital Gabor filters with MRA structure, *SIAM Journal on Multiscale Modeling and Simulation* (**SIAM MMS**), 16(1), 52–476. Mar. 2018

34. Zhengyun Zhang, Chenlong Bao, Hui Ji, Zuowei Shen and G. Barbastathis, Apparent coherence loss in phase space tomography, *Journal of the Optical Society of America A* (**JOSA-A**), 34(11), 2025-2033, 2017

33. Hui Ji, Zuowei Shen and Yufei Zhao, Directional frames for image Recovery: Multi-scale discrete Gabor frames, *Journal of Fourier Analysis and Applications* (**JFAA**), 23(4), 729-757, Aug. 2017

32. Hui Ji, Yu Luo and Zuowei Shen, Image recovery via geometrically structured approximation, *Applied and Computational Harmonic Analysis* (**ACHA**), 41(1), 75-93, Jul. 2016

31. Weiqiang Chen, Hui Ji and Yanfei You, An augmented Lagrangian method for L1-regularized optimization problems with orthogonality constraints, *SIAM Journal on Scientific Computing* (**SIAM SISC**), 38(4), B570-B592, 2016

30. Chenlong Bao, Hui Ji, Yuhui Quan and Zuowei Shen, Dictionary learning for sparse coding: Algorithms and analysis, *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**IEEE PAMI**), "Special Section of CVPR 2014", 38(7), 1356-1369, Jul. 2015

29. Changqing Wang, Judy Kipping, Chenlong Bao, Hui Ji and Anqi Qiu, Cerebellar functional parcellation using sparse dictionary learning clustering, *Frontiers in Neuroscience*, 10(188), May. 2016

28. Zhitao Fan, Hui Ji and Zuowei Shen, Dual Gramian analysis: duality principle and unitary extension principle, *AMS Mathematics of Computation* (**AMS MCOM**), 85, 239-270, 2016

27. Yong Xu, Yuhui Quan, Z. Zhang, Haibin Ling and Hui Ji, Classifying dynamic textures via spatiotemporal fractal analysis, *Pattern Recognition* (**PR**), 48(10), 3239-3248, Oct. 2015

26. Yuhui Quan, Hui Ji and Zuowei Shen, Data-driven multi-scale non-local wavelet frame construction and image recovery, *Journal of Scientific Computing* (**JSC**), 63(2), 307-329, May 2015

25. Chenlong Bao, Hui Ji and Zuowei Shen, Convergence analysis for iterative data-driven tight frame construction scheme, *Applied and Computational Harmonic Analysis* (**ACHA**), 38(5), 510-523, May 2015

24. Jianfeng Cai, Hui Ji, Zuowei Shen and Guibo Ye, Data-driven tight frame construction and image denoising, *Applied and Computational Harmonic Analysis* (**ACHA**), 37(1), 89-105, Jul. 2014

23. Ming Li, Zhitao Fan, Hui Ji and Zuowei Shen, Wavelet frame based algorithm for 3D reconstruction in electron microscopy, *SIAM Journal on Scientific Computing* (**SIAM SISC**), 36(1), B24-B46, Jan. 2014

22. Likun Hou, Hui Ji and Zuowei Shen, Recovering over/under-exposed regions of a colour photograph, *SIAM Journal on Imaging Science* (**SIAM SIIMS**), 6(4), 2213-2235, Nov. 2013

21. Likun Hou and Hui Ji, Band-limited wavelets and framelets in low dimensions, *Journal of Fourier Analysis and Applications* (**JFAA**), 19(4), 731-761, Aug. 2013

20. Hui Ji, Xiong Yang, Haibin Ling and Yong Xu, Static and dynamic texture classification using multifractal analysis in wavelet domain, *IEEE Transactions on Image processing* (**IEEE TIP**), 22 (1), 286-299, Jan. 2013

19. Yong Xu, Sibin Huang, Hui Ji and Cornelia Fermuller, Scale-space texture description on SIFT-like textons, *Computer Vision and Image Understanding* (**CVIU**), 116 (9), 999-1013, September 2012

18. Hui Ji and Kang Wang, Robust image deconvolution with an inaccurate blur kernel, *IEEE Transactions on Image processing* (**IEEE TIP**), 21 (4), 1624-1634, April 2012

17. Hui Ji, Jia Li, Zuowei Shen and Kang Wang, Image deconvolution by a characterization of sharp images in wavelet domain, *Applied and Computational Harmonic Analysis* (**ACHA**), 32 (2), 295–303, March 2012.

16. Jianfeng Cai, Hui Ji, Chaoqiang Liu and Zuowei Shen, Framelet based blind image deblurring from a single image, *IEEE Transactions on Image Processing* (**IEEE TIP**), 21(2), 562–572, March 2012

15. Bin Dong, Hui Ji, Jia Li, Zuowei Shen and Yuhong Xu, Wavelet frame based blind image inpainting, *Applied and Computational Harmonic Analysis* (**ACHA**), 32 (2), 268–279, February 2012

14. Hui Ji, Sibin Huang, Zuowei Shen and Y.-H. Xu, Robust video restoration by joint sparse and low rank matrix approximation, *SIAM journal on imaging science* (**SIAM SIIMS**), 4, 1122–1142, November, 2011

13. Hui Ji, Zuowei Shen and Y.-H. Xu, Wavelet frame based image restoration with missing/damaged pixels, *East Asia Journal on Applied Mathematics*, 1 (2), 108–131, 2011

12. Jianfeng Cai, Hui Ji, F. Shang and Zuowei Shen, Inpainting for compressed image, *Applied and Computational Harmonic Analysis* (**ACHA**), 29 (3), 368-381, November 2010

11. Hui Ji, Zuowei Shen and Y.-H. Xu, Wavelet frame based scene reconstruction from range data, *Journal of Computational Physics* (**JCP**), 229 (6), , 2093–2018, March 2010.

10. Cornelia Fermuller, Hui Ji and A. Kitaoka, Illusory motion due to causal time filtering, *Vision Research*, 50 (3), 315–329, February 2010.

9. Jianfeng Cai, Hui Ji, Chaoqiang Liu and Zuowei Shen, Blind motion deblurring using multiple images, *Journal of Computational Physics* (**JCP**), 228 (14), 5057-5071, August 2009

8. Yong Xu, Hui Ji and Cornelia Fermuller, Viewpoint invariant texture description using fractal analysis, *International Journal of Computer Vision* (**IJCV**), 83 (1), 85-100, June 2009
7. B. Han and Hui Ji, Compactly supported orthonormal complex wavelets with dilation four and symmetry, *Applied and Computational Harmonic Analysis* (**ACHA**), 26, 422-431, May 2009
6. Hui Ji and Cornelia Fermuller, Robust wavelet-based super-resolution reconstruction: Theory and Algorithm, *IEEE Transactions on Pattern Analysis and Machine Intelligence* (**IEEE PAMI**), 31 (4), 649-660, April 2009
5. Hui Ji and Cornelia Fermuller, Better flow estimation from color images, *EUROSIP Journal on Advance in Signal Processing*, (1), January 2007
4. Hui Ji and Cornelia Fermuller, A 3D shape constraint on video, *IEEE Transactions on Pattern Recognition and Machine Intelligence* (**IEEE PAMI**), 28 (6), 1018-1023, June 2006
3. Hui Ji and Cornelia Fermuller, Noise causes slant underestimation in motion and stereo, *Vision Research*, 46 (19), 3105–3120, August 2006
2. Hui Ji and Zuowei Shen, Compactly supported (bi)orthogonal wavelets generated by interpolatory refinable functions, *Advances in Computational Mathematics*, 11, 81–104, July 1999
1. Hui Ji, S. D. Riemenschneider and Zuowei Shen, Multivariate compactly supported fundamental refinable functions, duals and biorthogonal wavelets, *Studies in Applied Mathematics*, 102 (2), 173–204, February 1999

Refereed Conference Proceedings in Computer Science

Remark. *Conference is the major publication venue highly regarded in computer science. ICCV, CVPR, ECCV are premier conferences in Computer Vision.* NeuRIPS, ICML, ICLR are premier conferences in Machine Learning.

51. Tianjing Zhang, Yuhui Quan, and Hui Ji, Cross-scale self-supervised blind image deblurring via implicit neural representation,, *Thirty-eighth Annual Conference on Neural Information Processing Systems*, (**NeurIPS**), Dec., Vancouver, 2024
50. Yuhui Quan, Tianxiang Zhang, and Hui Ji, Pseudo-Siamese directional transformers for Self-supervised real-world denoising, *Thirty-eighth Annual Conference on Neural Information Processing Systems*, (**NeurIPS**), Dec., Vancouver, 2024
49. Yuhui Quan, Xiaoheng Tan, Yan Huang, Yong Xu, and Hui Ji, Enhancing underwater images via asymmetric multi-scale invertible networks, *ACM Multimedia*, (**ACM MM**), Oct., Melbourne, 2024
48. Yutian Zhao, Tianjing Zhang, and Hui Ji, Test-time model adaption for image reconstruction with self-supervised adaptive layers, *European Conference on Computer Vision* (**ECCV**), Oct., Mico Milano, 2024
47. Zhile Chen, Yuhui Quan, and Hui Ji, Unsupervised deep unrolling network for phase unwrapping, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), Seattle, Jun., 2024
46. Yuhui Quan, Xin Yao, and Hui Ji, Single image defocus deblurring via implicit neural inverse kernels, *International Conference on Computer Vision* (**ICCV**), Paris, Oct., 2023
45. Yuhui Quan, Huan Teng, Ruotao Xu, Jun Huang, and Hui Ji, Fingerprinting deep image restoration models, *International Conference on Computer Vision* (**ICCV**), Paris, Oct., 2023
44. Ji Li, Weixi Wang, Yuesong Nan, and Hui Ji, Self-supervised blind motion deblurring with deep expectation maximization, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), Vancouver, Jun., 2023
43. Xinran Qin, Yuhui Quan, Tongyao Pang, and Hui Ji, Ground-truth free meta-learning for deep compressive sampling, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), Vancouver, Jun., 2023

42. Yuhui Quan, Zicong Wu, and Hui Ji, Neumann network with recursive kernels for single image defocus deblurring, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), Vancouver, Jun., 2023

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- QF5206A *Machine Learning in Finance*
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- MA5232 *Mathematical Modeling and Numerical Simulations*
- MA5242 *Wavelets*
- MA5241 *Computational Harmonic Analysis*
- GS6000 *Vision and Perception*
- MA4229 *Approximation Theory*
- MA4268 *Mathematics in Visual Data Processing*
- MA4272 *Mathematical Tools for Data Science*
- MA3227 *Numerical Analysis II*
- CZ1102 *Problem Solving and Computation*