Hui Ji — Curriculum Vitae

Academic address
Department of Mathematics
National University of Singapore
Singapore 119076

Contact information
Phone: (65) 65168845
Email: matjh@nus.edu.sg
Web: blog.nus.edu.sg/matjh

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
  Supervisor: Dr. Cornelia Fermüller and Professor Yannis Aloimonos
- *M.Sc.* in Applied Mathematics, National University of Singapore, Singapore 07/1998
- *B.Sc.* in Mathematics, Nanjing University, China 07/1993

Professional Experience

- *Professor*, Department of Mathematics, NUS, 07/2023 –
- *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 –

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

Service as reviewers

- *Reviewer for Journal*:
  - Mathematics:
    SIAM: Multiscale Modeling and Simulation; SIAM Journal on Mathematical Analysis; SIAM Journal on Imaging Sciences; SIAM Journal on Mathematical Analysis; AMS Mathematics of Computation; Applied and Computational Harmonic Analysis; Journal of Fourier Analysis and Applications; Advances in Computational Mathematics; Inverse Problem and Imaging; Journal of Mathematical Imaging and Vision
  - Science and Engineering:
    IEEE Transactions on Pattern Analysis and Machine Intelligence; International Journal of Computer Vision; IEEE Transactions on Image Processing; IEEE Transactions on Information Theory; IEEE Transactions on Computational Imaging, IEEE Transactions on Remote Sensing and Geophysics; IEEE Transactions on Circuits and Systems for Video Technology; IEEE Transactions on Signal Processing; IEEE Signal Processing Letter; IEEE Journal of Selected Topics in Signal Processing; Computer Vision and Imaging Understanding; Elsevier: Signal Processing; Elsevier: Computers & Graphics; Image and Vision Computing; Optical Engineering; The Visual Computer; Pattern Recognition; Journal of Visual Communication and Image Representation; Nature Machine Intelligence
- *Reviewer for Selected Refereed Computer Science Conference*
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2009 – 2023; European Conference on Computer Vision (ECCV), 2010 – 2022; International Conference on Computer Vision (ICCV), 2011 – 2023; International Conference on Machine Learning (ICML), 2016 – 2023; Conference on Neural Information Processing Systems (NeuIPS), 2016 – 2022; International Conference on Learning Representations (ICLR), 2021 – 2023

Program/Workshop Organization Committee

- 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, *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, *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

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* (**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* (**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 (**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* (**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* (**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* (**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*, (**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*, (**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* (**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* (**IPI**), 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* (**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,* (**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,* (**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,* (**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* (**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* (**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* (**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*, 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* (**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* (**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 G. 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* (**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* (**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* (**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* (**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* (**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* (**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* (**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* (**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 and ECCV are three premier conferences in Computer Vision, NeurIPS, ICLR, ICML are premier conferences in Machine Learning, and AAAI, IJCAI are premier conferences in Artifical Intelligence.*

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

41. Yuhui Quan, Zhile Chen, Tongyao Pang, and Hui Ji, Unsupervised deep learning for phase retrieval via teacher-student distillation, *37th AAAI Conference on Artificial Intelligence* (**AAAI**), **Oral**, Washington DC, Feb., 2023

40. Huan Zheng, Tongyao Pang, and Hui Ji, Unsupervised deep video denoising with untrained network, *37th AAAI Conference on Artificial Intelligence* (**AAAI**), **Oral**, Washington DC, Feb., 2023

39. Yuhui Quan, Zhuojie Chen, Huan Zheng, Hui Ji, , *European Conference on Computer Vision* (**ECCV**), Tel-Aviv, Oct., 2022

38. Yuhui Quan, Xinran Qin Tongyao Pang, Hui Ji, Dual-domain self-supervised learning and model adaption for compressed sensing of images, *European Conference on Computer Vision* (**ECCV**), Tel-Aviv, Oct., 2022

37. Weixi Wang, Ji Li, and Hui Ji, Self-supervised deep learning for image recovery/reconstruction via adaptive Stochastic gradient Langevin dynamics, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), New Orleans, Jun., 2022

36. Jiachun Li, Kunkun Qin, Ruotao Xu and Hui Ji, Deep scale-ware image smoothing, *IEEE International Conference on Acoustics, Speech, and Signal Processing* (**ICASSP**), May., 2022

35. Yuhui Quan, Zicong Wu, Hui Ji, Gaussian kernel mixture network for single image defocus deblurring, *35th Annual Conference on Neural Information Processing Systems* (**NeurIPS**), Dec., 2021

34. Qiaoqiao Ding, Hui Ji, Hao Gao and Xiaoqun Zhang, Learnable Multi-scale Fourier Interpolation for Sparse View CT Image Reconstruction, *24th International Conference on Medical Image Computing & Computer Assisted Intervention* (**MICCAI**), Strasbourg, Oct., 2021

33. Tongyao Pang, Huan Zheng, Yuhui Quan, Hui Ji, Recorrupted-to-Recorrupted: Unsupervised Deep Learning for Image Denoising, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), Nashville, Jun., 2021

32. Yuhui Quan, Zhile Chen, Feng Li, Yong Xu, Hui Ji, Texture Recognition via Exploiting Cross-Layer Statistical Self-Similarity, *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**), Nashville, Jun., 2021

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Former and Current Postdoc Research Fellow

- Dr. LI Ji (2019 – 2023) Now Associate Professor at Academy for Multidisciplinary Studies, Capital Normal University, Beijing, China
- Dr. DING Qiaoqiao (2018 – 2021). Now Researcher Scientist at Shanghai Jiaotong University, Shanghai, China
- Dr. LIU Jiulong (2018 – 2021). Now Associate Professor at Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
- Dr. QUAN Yuhui (2013 – 2015). Now Associate Professor at School of Computer Science & Engineering, South China University of Technology, Guangzhou, China

Ph.D. Student Supervision

Current Ph.D. Student

- ZHANG Tianjing, Ph.D. student 2022 –
- MA Zhiyuan, Ph.D. student 2022 –
- ZHAO Yutian, Ph.D. student 2021 –
- LI Xingyao, Ph.D. student 2021 –
- YANG Xi (Co-advisor), Ph.D. student 2019 –
- ZHENG Huan, Ph.D. student 2019 –

Graduated Ph.D. Student

- WANG Weixi, Ph.D. (2023). Quantitative Analyst at DBS bank, Singapore
- YANG Ziyi, Ph.D. (2021). Algorithm Engineer at Advanced.AI Inc., Beijing, China
- NAN Yuesong, Ph.D. (2020). Algorithm Engineer at Zoom Video Communications Inc., USA
- YANG Liuge, Ph.D. (2020). Quantitative Modeller at DBS bank, Singapore
- PANG Tongyao, Ph.D. (2019). Tenure-track Assistant Professor at Yau Mathematical Sciences Center, Tsinghua University, China
- XU Guodong, Ph.D. (2018). Senior Research Scientist at NetVirta Inc., Singapore
- ZHAO Yufei, Ph.D. (2016). Lecturer at School of Mathematical Sciences, Nankai University, China
- BAO Chenglong, Ph.D. (2014). Tenure-track Assistant Professor at Yau Mathematical Sciences Center, Tsinghua University, China
- WANG Kang, Ph.D. (2013). Quantitative Analyst at UBS Investment Bank, Hong Kong

Modules taught at NUS

- DSA5203 *Visual Data Processing and Interpretation*
- QF5208 *AI and Fintech*
- QF5206A *Machine Learning in Finance*
- MA6241 *Topics in Applied Mathematics I*
- 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*