Ju Sun

Curriculum Vitae

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Jul. 2019 – current **Assistant Professor**, *Department of Computer Science & Engineering, University of Minnesota at Twin Cities (UMN)*, Minnesota, USA
Director: Group of Learning, Optimization, Vision, healthcarE, and X (GLOVEX)
Director: Healthcare Computer Vision Program (Program for Clinical AI, CLHSS)
Chair: College of Science and Engineering DSI Machine Learning Seminar Series
Affiliation: Department of Electrical and Computer Engineering, UMN Data Science Initiative (DSI), Data Science Graduate Faculty, Institute for Health Informatics (IHI), Institute for Engineering in Medicine (IEM), Innovative Methods and Data Science (IMDS, CLHSS), Program for Healthcare Artificial Intelligence (P4AI, CLHSS), Masonic Cancer Center, AI-CLIMATE (National AI Research Institute for Climate-Land Interactions, Mitigation, Adaptation, Tradeoffs and Economy)

Work Experience

Sep. 2016 – Jun. 2019 **Math+X Postdoctoral Scholar**, *Stanford University*, California, USA
With Prof. Emmanuel Candès

Jul. 2008 – Aug. 2011 **Research Engineer**, *Interactive & Digital Media Institute*, National University of Singapore, Singapore
With Prof. Loong-Fah Cheong & Prof. Shuicheng Yan & Prof. Lawrence Wong

Education

2011 – 2016 **Doctor of Philosophy**, *Electrical Engineering, Columbia University*, New York, USA
Advisor: Prof. John Wright

2004 – 2008 **Bachelor of Engineering (ECE, honors) with Minor in Mathematics**, *National University of Singapore*, Singapore
Advisor: Prof. Loong-Fah Cheong & Prof. Shuicheng Yan

Honors/Awards

2024 **Frontiers of Science Award in Mathematics, International Congress of Basic Science (ICBS)**
2021 **AAAI New Faculty Highlights**
2018 **Honorable Mention of Doctoral Thesis for New World Mathematics Awards 2017**
2015 **Best Student Paper Award on SPARS'15**

Research Interests

At the intersection of machine/deep learning, computer vision, data science, numerical optimization, signal processing, and healthcare/medicine. Current research thrusts: (i) Trustworthy AI, (ii) Computation for AI, (iii) AI for science and engineering, and (iv) AI for healthcare. See our research page `https://glovex.umn.edu/research`

Publications

Total citations: 7095, H-index: 22, H10-index: 35, according to Google Scholar as of 15th February, 2025. Please refer to my Google scholar page for an updated publication list and citation figures.

Journals

[1] Hengyue Liang, Le Peng, and **Sun, Ju**. Selective Classification Under Distribution Shifts. *Transactions on machine learning research*, 2024.

[2] Sicheng Zhou, Anne Blaes, Chetan Shenoy, **Sun, Ju**, and Rui Zhang. Risk Prediction of Heart Diseases in Breast Cancer Patients: A Deep Learning Approach with Longitudinal Electronic Health Records Data. *iScience*, page 110329, 2024.

[3] Chuan He, Le Peng, and **Sun, Ju**. Federated learning with convex global and local constraints. *Transactions on machine learning research*, 2024.

[4] Le Peng, Gaoxiang Luo, Sicheng Zhou, Jiandong Chen, Ziyue Xu, **Sun, Ju**, and Rui Zhang. An in-depth evaluation of federated learning on biomedical natural language processing for information extraction. *NPJ Digital Medicine*, 7(1):127, 2024.

[5] Pui Ying Yew, Ryan Devera, Yue Liang, Razan A El Khalifa, **Sun, Ju**, Nai-Ching Chi, Ying-Chyi Chou, Peter J Tonellato, and Chih-Lin Chi. Unraveling the multiple chronic conditions patterns among people with Alzheimer's disease and related dementia: A machine learning approach to incorporate synergistic interactions. *Alzheimer's & Dementia*, 2024.

[6] Christine Conelea, Hengyue Liang, Megan DuBois, Brittany Raab, Mia Kellman, Brianna Wellen, Suma Jacob, Sonya Wang, **Sun, Ju**, and Kelvin Lim. Automated Quantification of Eye Tics Using Computer Vision and Deep Learning Techniques. *Movement Disorders*, 39(1):183–191, 2024.

[7] Sicheng Zhou, Nan Wang, Liwei Wang, **Ju Sun**, Anne Blaes, Hongfang Liu, and Rui Zhang. A cross-institutional evaluation on breast cancer phenotyping NLP algorithms on electronic health records. *Computational and Structural Biotechnology Journal*, 22:32–40, 2023.

[8] Hengkang Wang, Taihui Li, Zhong Zhuang, Tiancong Chen, Hengyue Liang, and **Ju Sun**. Early Stopping for Deep Image Prior. *Transactions on Machine Learning Research*, 2023.

[9] Zhong Zhuang, Taihui Li, Hengkang Wang, and **Sun, Ju**. Blind image deblurring with unknown kernel size and substantial noise. *International Journal of Computer Vision*, 132(2):319–348, 2024.

[10] Hengkang Wang, Han Lu, **Sun, Ju**, and Sandra E Safo. Interpretable deep learning methods for multiview learning. *BMC bioinformatics*, 25(1):69, 2024.

[11] Zan Gao, Suryeon Ryu, Wanjiang Zhou, Kaitlyn Adams, Mohamed Hassan, Rui Zhang, Anne Blaes, Julian Wolfson, and **Ju Sun**. Effects of personalized exercise prescriptions and social media delivered through mobile health on cancer survivors' physical activity and quality of life. *Journal of Sport and Health Science*, 12(6):705–714, 2023.

[12] Li Shen, Congliang Chen, Fangyu Zou, Zequn Jie, **Sun, Ju**, and Wei Liu. A Unified Analysis of AdaGrad With Weighted Aggregation and Momentum Acceleration. *IEEE Transactions on Neural Networks and Learning Systems*, 35(10):14482–14490, 2024.

[13] Yash Travadi, Le Peng, Xuan Bi, **Ju Sun**, and Mochen Yang. Welfare and Fairness Dynamics in Federated Learning: A Client Selection Perspective. *Statistics and Its Interface*, 2023.

[14] Le Peng *et al*, **Ju Sun**, and Christopher J Tignanelli. Evaluation of federated learning variations for COVID-19 diagnosis using chest radiographs from 42 US and European hospitals. *Journal of the American Medical Informatics Association (JAMIA)*, 30(1):54–63, 2023.

[15] **Ju Sun** *et al*. A Prospective Observational Study to Investigate Performance of a Chest X-ray Artificial Intelligence Diagnostic Support Tool Across 12 U.S. Hospitals. *Radiology: Artificial Intelligence*, 4(4), 2022.

[16] David A. Barmherzig and **Ju Sun**. Towards Practical Holographic Coherent Diffraction Imaging via Maximum Likelihood Estimation. *Optics Express*, 30(5):6886–6906, 2022.

[17] **Ju Sun** *et al*. A Prospective Observational Study to Investigate Performance of a Chest X-ray Artificial Intelligence Diagnostic Support Tool Across 12 U.S. Hospitals. *Radiology: Artificial Intelligence*, 4(4), 2022.

[18] Birra Taha, Daniel Boley, **Ju Sun**, and Clark C. Chen. Potential and Limitations of Radiomics in Neuro-oncology. *Journal of Clinical Neuroscience*, 90:206–211, 2021.

[19] Birra Taha, Daniel Boley, **Ju Sun**, and Clark C. Chen. State of Radiomics in Glioblastoma. *Neurosurgery*, 89(2):177–184, 2021.

[20] Birra Taha, Taihui Li, Daniel Boley, Clark C. Chen, and **Ju Sun**. Detection of Isocitrate Dehydrogenase Mutated Glioblastomas through Anomaly Detection Analytics. *Neurosurgery*, 89(2):323–328, 2021.

[21] Sky C Cheung, John Y Shin, Yenson Lau, Zhengyu Chen, **Ju Sun**, Yuqian Zhang, John N Wright, and Abhay N Pasupathy. Dictionary Learning in Fourier Transform Scanning Tunneling Spectroscopy. *Nature Communications*, 11(1081), 2020.

[22] David Barmherzig, **Ju Sun**, Po-Nan Li, TJ Lane, and Emmanuel J. Candès. Holographic Phase Retrieval and Reference Design. *Inverse Problems*, 35(9):094001, 2019.

[23] Tianjian Lu, **Ju Sun**, Ken Wu, and Zhiping Yang. High-Speed Channel Modeling With Machine Learning Methods for Signal Integrity Analysis. *IEEE Transactions on Electromagnetic Compatibility*, 60(6):1957–1964, 2018.

[24] **Ju Sun**, Qing Qu, and John Wright. A Geometric Analysis of Phase Retrieval. *Foundations of Computational Mathematics*, 18(5):1131–1198, 2018.

[25] **Ju Sun**, Qing Qu, and John Wright. Complete Dictionary Recovery over the Sphere II: Recovery by Riemannian Trust-region Method. *IEEE Trans. Information Theory*, 63(2):885–914, 2017.

[26] **Ju Sun**, Qing Qu, and John Wright. Complete Dictionary Recovery over the Sphere I: Overview and the Geometric Picture. *IEEE Trans. Information Theory*, 63(2):853–884, 2017.

[27] Qing Qu, **Ju Sun**, and John Wright. Finding a Sparse Vector in a Subspace: Linear Sparsity Using Alternating Directions. *IEEE Trans. Information Theory*, 62(10):5855–5880, 2016.

[28] **Ju Sun**, Yuqian Zhang, and John Wright. Efficient Point-to-Subspace Query in ℓ^1 with Application to Robust Object Instance Recognition. *SIAM Journal on Imaging Sciences*, 7(4):2105–2138, 2014.

[29] Guangcan Liu, Zhouchen Lin, Shuicheng Yan, **Ju Sun**, Yong Yu, and Yi Ma. Robust Recovery of Subspace Structures by Low-Rank Representation. *IEEE Trans. Pattern Anal. Mach. Intell.*, 35(1):171–184, 2013.

Conferences & Workshops

[30] Hengkang Wang, Xu Zhang, Taihui Li, Yuxiang Wan, Tiancong Chen, and **Sun, Ju**. DMPlug: A Plug-in Method for Solving Inverse Problems with Diffusion Models. In *Advances in Neural Information Processing Systems*, 2024.

[31] Wenjie Zhang, Yuxiang Wan, Zhong Zhuang, and **Sun, Ju**. hat is Wrong with End-to-End Learning for Phase Retrieval? *Machine Learning for Scientic Imaging at Electronic Imaging*, 2024.

[32] Zhong Zhuang, Taihui Li, Hengkang Wang, and **Sun, Ju**. Blind Image Deblurring with Unknown Kernel Size and Substantial Noise. In *NeurIPS 2023 Workshop on Deep Learning and Inverse Problems*.

[33] Zhong Zhuang, David Yang, David Barmherzig, and **Sun, Ju**. Phase Retrieval Using Double Deep Image Priors. In *NeurIPS 2023 Workshop on Deep Learning and Inverse Problems*.

[34] Chuan He, Le Peng, and **Ju Sun**. Federated Learning with Convex Global and Local Constraints. In *OPT 2023: Optimization for Machine Learning*, 2023.

[35] Le Peng, sicheng zhou, jiandong chen, Rui Zhang, Ziyue Xu, and **Ju Sun**. A Systematic Evaluation of Federated Learning on Biomedical Natural Language Processing, 2023.

[36] Hengyue Liang, Buyun Liang, Le Peng, Ying Cui, Tim Mitchells, and **Ju Sun**. Implications of Solution Patterns on Adversarial Robustness. In *The 3rd Workshop of Adversarial Machine Learning on Computer Vision: Art of Robustness (in conjunction with CVPR 2023)*, 2023.

[37] Taihui Li, Hengkang Wang, Zhong Zhuang, and **Ju Sun**. Deep Random Projector: Accelerated Deep Image Prior. In *Computer Vision and Pattern Recognition (CVPR)*, 2023.

[38] Taihui Li, Zhong Zhuang, Hengkang Wang, and **Ju Sun**. Random Projector: Efficient Deep Image Prior. In *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2023.

[39] Taihui Li, Hengkang Wang, Le Peng, XianE Tang, and **Ju Sun**. Robust Autoencoders for Collective Corruption Removal. In *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2023.

[40] Hengyue Liang, Buyun Liang, Ying Cui, Tim Mitchell, and **Ju Sun**. Optimization for Robustness Evaluation beyond ℓ_p Metrics. In *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2023.

[41] Zhong Zhuang, David Yang, Felix Hofmann, David Barmherzig, and **Ju Sun**. Practical Phase Retrieval Using Double Deep Image Priors. In *Computational Imaging XXI*, 2023.

[42] Le Peng, Yash Travadi, Rui Zhang, Ying Cui, and **Ju Sun**. Imbalanced Classification in Medical Imaging via Regrouping. In *NeurIPS Workshop on Medical Imaging Meets NeurIPS*, 2022.

[43] Hengyue Liang, Buyun Liang, Ying Cui, Tim Mitchell, and **Ju Sun**. Optimization for Robustness Evaluation beyond ℓ_p Metrics. In *NeurIPS Workshop on Optimization for Machine Learning*, 2022.

[44] Buyun Liang, Tim Mitchell, and **Ju Sun**. NCVX: A General-Purpose Optimization Solver for Constrained Machine and Deep Learning. In *NeurIPS Workshop on Optimization for Machine Learning*, 2022.

[45] Taihui Li, Zhong Zhuang, Hengyue Liang, Le Peng, Hengkang Wang, and **Ju Sun**. Self-Validation: Early Stopping for Single-Instance Deep Generative Priors. In *British Machine Vision Conference (BMVC)*, 2021.

[46] Raunak Manekar, Zhong Zhuang, Kshitij Tayal, Vipin Kumar, and **Ju Sun**. Deep Learning Initialized Phase Retrieval. In *NeurIPS 2020 Workshop on Deep Learning and Inverse Problems*, 2020.

[47] Kshitij Tayal, Chieh-Hsin Lai, Raunak Manekar, Zhong Zhuang, Vipin Kumar, and **Ju Sun**. Unlocking Inverse Problems Using Deep Learning: Breaking Symmetries in Phase Retrieval. In *NeurIPS 2020 Workshop on Deep Learning and Inverse Problems*, 2020.

[48] Taihui Li, Rishabh Mehta, Zecheng Qian, and **Ju Sun**. Rethink Autoencoders: Robust Manifold Learning. In *ICML workshop on Uncertainty and Robustness in Deep Learning*, 2020.

[49] Zhong Zhuang, Gang Wang, Yash Travadi, and **Ju Sun**. Phase Retrieval via Second-Order Nonsmooth Optimization. In *ICML workshop on Beyond First Order Methods in Machine Learning*, 2020.

[50] Raunak Manekar, Kshitij Tayal, Vipin Kumar, and **Ju Sun**. End-to-End Learning for Phase Retrieval. In *ICML workshop on ML Interpretability for Scientific Discovery*, 2020.

[51] Kshitij Tayal, Chieh-Hsin Lai, Raunak Manekar, Vipin Kumar, and **Ju Sun**. Inverse Problems, Deep Learning, and Symmetry Breaking. In *ICML workshop on ML Interpretability for Scientific Discovery*, 2020.

[52] David Barmherzig and **Ju Sun**. Low-Photon Holographic Phase Retrieval. In *OSA Imaging and Applied Optics Congress*, 2020.

[53] David Barmherzig, **Ju Sun**, Emmanuel J. Candès, TJ Lane, and Po-Nan Li. Dual-Reference Design for Holographic Coherent Diffraction Imaging. In *Sampling Theory and Applications*, 2019.

[54] Yu Bai, Qijia Jiang, and **Ju Sun**. Subgradient Descent Learns Orthogonal Dictionaries. In *International Conference on Learning Representations*, 2019.

[55] David Barmherzig and **Ju Sun**. 1D Phase Retrieval and Spectral Factorization. In *Mathematics in Imaging*, pages JTh1A–4. Optical Society of America, 2018.

[56] David A Barmherzig, **Ju Sun**, TJ Lane, and Po-Nan Li. On Block-Reference Coherent Diffraction Imaging. In *Computational Optical Sensing and Imaging*, pages CTH1B–1. Optical Society of America, 2018.

[57] David Barmherzig and **Ju Sun**. A Local Analysis of Block Coordinate Descent for Gaussian Phase Retrieval. In *NIPS Workshop on Optimization for Machine Learning*, 2017.

[58] **Ju Sun**, Qing Qu, and John Wright. A Geometrical Analysis of Phase Retrieval. In *International Symposium on Information Theory*, 2016.

[59] **Ju Sun**, Qing Qu, and John Wright. When Are Nonconvex Problems Not Scary? In *NIPS Workshop on Non-convex Optimization for Machine Learning: Theory and Practice*, 2015.

[60] **Ju Sun**, Qing Qu, and John Wright. Complete Dictionary Recovery over the Sphere. In *International Conf. on Machine Learning*, 2015. (Also appears in SAMPTA'15 and SPARS'15; Best Student Paper Award at SPARS'15).

[61] Qing Qu, **Ju Sun**, and John Wright. Finding a sparse vector in a subspace: Linear sparsity using alternating directions. In *Advances in Neural Information Processing Systems*, pages 3401–3409, 2014.

[62] **Ju Sun**, Yuqian Zhang, and John Wright. Efficient Point-to-Subspace Query in ℓ^1 with Application to Robust Face Recognition. In *European Conference on Computer Vision (ECCV)*, pages 416–429, 2012.

[63] Guangcan Liu, **Ju Sun**, and Shuicheng Yan. Closed-Form Solutions to A Category of Nuclear Norm Minimization Problems. *NIPS Workshop on Low-Rank Methods for Large-Scale Machine Learning*, `http://arxiv.org/abs/1011.4829`, October 2010.

[64] Yuzhao Ni, **Ju Sun**, Xiaotong Yuan, Shuicheng Yan, and Loong Fah Cheong. Robust Low-Rank Subspace Segmentation with Semidefinite Guarantees. In *ICDM Workshop on Optimization Based Methods for Emerging Data Mining Problems (OEDM)*, 2010.

[65] Yadong Mu, **Ju Sun**, Tony X. Han, Loong Fah Cheong, and Shuicheng Yan. Randomized Locality Sensitive Vocabularies for Bag-of-Features Model. In *European Conference on Computer Vision (ECCV)*, pages 748 – 761, 2010.

[66] **Ju Sun**, Yadong Mu, Shuicheng Yan, and Loong Fah Cheong. Activity Recognition using Dense Long-Duration Trajectories. In *International Conference on Multimedia & Expo (ICME)*, pages 322 – 327, 2010.

[67] **Ju Sun**, Xiao Wu, Shuicheng Yan, Loong Fah Cheong, Tat-Seng Chua, and Jintao Li. Hierarchical Spatio-Temporal Context Modeling for Action Recognition. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 2004 – 2011, 2009.

[68] Ching Lik Teo, Shimiao Li, Loong Fah Cheong, and **Ju Sun**. 3D Ordinal Constraint in Spatial Configuration for Robust Scene Recognition. In *International Conference on Pattern Recognition (ICPR)*, pages 1 – 5, 2008.

Thesis

[69] **Ju Sun**. *When Are Nonconvex Optimization Problems Not Scary?* PhD thesis, Columbia University, May 2016.

Unpublished Reports

[70] **Ju Sun**, Qiang Chen, Shuicheng Yan, and Loong Fah Cheong. Selective Image Super-Resolution. *Technical Report*, `http://arxiv.org/abs/1010.5610`, March 2010.

Teaching

- CSCI5525: Machine Learning: Analysis and Methods (Fall 2024, Spring 2021)
- CSCI5527: Deep Learning: Models, Computation, and Applications (Spring 2025, Fall 2023, Fall 2022)
- CSCI2033: Elementary Computational Linear Algebra (Spring 2023, Spring 2022)
- CSCI8980: Topics in Modern Machine Learning (Fall 2021)
- CSCI8980: Think Deep Learning (Spring/Fall 2020)

PhD Students

- Sinian Zhang (PhD, Biostats)
- Tiancong Chen (PhD, CS&E)
- Yash Travadi (PhD, Stats)
- Ryan Devera (PhD, CS&E)
- Guanchen Li (PhD, CS&E)
- Jiandong Chen (PhD, IHI)
- Yuxiang Wan (PhD, CS&E)
- Hengyue Liang (PhD, ECE)
- Le Peng (PhD, CS&E)
- Hengkang Wang (PhD, CS&E)
- Taihui Li (PhD, CS&E)
- Gaoxiang Luo (PhD, CS&E)
- Corey Senger (PhD, CS&E)

PhD/Postdoc Alumni

- Chuan He (Postdoc, 23-24); now Assistant Professor@Linköping University, Sweden
- Zhong Zhuang (PhD'23, ECE); now Postdoc@UCLA

Invited Talks/Tutorials/Lectures

Diffusion Models for Inverse Problems Done Right

- SIAM Conference on Imaging Science (May 2024)

AI4Science: Striking the Best Data-Knowledge Tradeoff

- AI4Science Seminar Series, AWS (Apr 2024)

Deep Learning with Nontrivial Constraints

- 2024 INFORMS Optimization Society Conference (Mar 2024)

What's Wrong with End-to-End Learning for Phase Retrieval?

- Machine Learning for Scientific Imaging Conference (Electronic Imaging 2024, Jan 2024)

Robust Deep Learning: Where Are We?

- PSU-Purdue-UMD Joint Seminar on Mathematical Data Science (Nov 2023)
- MnRI Robotics Colloquium at Minnesota Robotics Institute (Oct 2023)

Tutorials on constrained deep learning with NCVX

- Deep Learning with Nontrivial Constraints @SIAM Conference on Data Mining (SDM'23, Apr 2023)

Three pillars of health data science: transfer learning, federated learning, imbalanced learning

- Annual BICB (Bioinformatics and Computational Biology) Research Symposium at UMN, Rochester (Jan 2023)
- Keynote at UMN IHI annual retreat (Dec 2022)

Toward practical phase retrieval with deep learning

- Computational Imaging XXI at the Electronic Imaging Symposium 2023 (Jan 2023)
- IPAM workshop on Diffractive Imaging with Phase Retrieval at UCLA (Oct 2022)

Deep image prior (and its cousin) for inverse problems: the untold stories

- Rice Imaging and Vision Seminar Series (Nov 2022)
- RPI seminar on Mathematics in imaging science, data science and optimization (Sep 2022)

Deep learning with constraints and nonsmoothness

- ICCOPT'22 session on Nonsmooth Optimization in Machine Learning (Jul 2022)

Deep learning for robust recognition, inverse problems, and healthcare

- Wilson Lecture Series (UMN ECE Colloquium) (Sep 2020)

Toward practical phase retrieval: to learn or not, and how to learn?

- Keynote, The 5th International Conference on Statistical Optimization and Learning, Virtual (Dec 2020)
- Optimization Forum organized by Operation Research Society of China, Virtual (Sep 2020)
- SIAM Conference on Mathematics of Data Science at Cincinnati, Ohio (May 2020)

Does Deep Learning Solve the Phase Retrieval Problem?

- SIAM Conference on Imaging Science, Virtual (Jul 2020)

Rapid and Robust COVID-19 Identification from Chest X-rays

- AIME2020: International Conference on Artificial Intelligence in Medicine , Virtual (Aug 2020)

When Computer Vision and Deep Learning Meet Healthcare

- Surgery Grand Rounds, Department of Surgery, UMN (May 2020)

Taming Nonconvexity: from Smooth to Nonsmooth Problems

- SINE Seminar at CSL, University of Illinois at Urbana–Champaign (Nov 2018)
- Center for Signal and Information Processing (CSIP) Seminar, Georgia Tech (Nov 2018)

When Nonconvexity Meets Nonsmoothness

- INFORMS Annual Meeting at Seattle, USA (Oct 2019)
- Annual Allerton Conference on Communication, Control, and Computing at Urbana, USA (Oct 2018)

When Are Nonconvex Optimization Problems Not Scary?

- IDeAS Seminar, Princeton University (Dec 2015)
- ITA Graduation Day, University of California, San Diego (Poster, Feb 2016)
- Prof. Emmanuel Candes' group seminar, Stanford University (Feb 2016)
- Microsoft Research at New York (Feb 2016)
- Prof. Qiang Du's group seminar, Columbia University (Mar 2016)
- ShanghaiTech University, SIST seminar series (Jun 2016)
- Modeling and optimization: theory and applications, Lehigh University (Aug 2016)
- SIAM Conference on Optimization at Vancouver, Bristish Columbia, Canada. (May 2017)
- Harvard ISS Seminar (Jun 2017)
- 2017 Meeting of the International Linear Algebra Society at Iowa State U. (Jul 2017)
- 2017 Asilomar Conference on Signals, Systems, and Computers at Asilomar Grounds in Pacific Grove (Oct 2017)
- SIAM Conference on Applied Linear Algebra at Hong Kong, China (May 2018)
- International Symposium on Mathematical Programming at Bordeaux, France (Jul 2018)

What's Happening in Provable Dictionary Learning?

- SIAM Conference on Imaging Sciences at Bologna, Italy (Jun 2018)

Complete Dictionary Learning over the Sphere

- Statistics student seminar, Columbia University (Mar 2015)
- DTC Seminar Talk, University of Minnesota (Apr 2015)
- Signal Processing with Adaptive Sparse Structured Representations (SPARS'15), University of Cambridge (Jul 2015)

Professional Activities/Services

Professional Association

- IEEE/ACM/SIAM/INFORMS/OSA/AAAI

Event Organization

- Co-Chair, Midwest Machine Learning Symposium (MMLS), 2024
- Area Chair, Uncertainty in Artificial Intelligence (UAI), 2023
- Area Chair, SIAM Conference on Data Mining (SDM), 2023
- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS), 2021–2023
- Co-Organizer, Nonsmooth Optimization for Machine Learning (A session in International Conference on Continuous Optimization (ICCOPT) 2022)
- Co-Organizer, Exploiting Low-Complexity Structures in Data Analysis: Theory and Algorithms (A mini-symposium in SIAM Conference on Applied Linear Algebra 2018)

Review for Journals

- IEEE Transactions: Information Theory (T-IT), Pattern Analysis and Machine Intelligence (T-PAMI), Circuits and Systems for Video Technology (T-CSVT), Image Processing (T-IP), Signal Processing (T-SP), Selected Topics in Signal Processing (JSTSP), Systems, Man, and Cybernetics (T-SMC)
- SIAM Journals: Imaging Sciences (SIIMS), Matrix Analysis and Applications (SIMAX), Optimization (SIOPT), Mathematics of Data Science (SIMODS), Scientific Computing (SISC)
- Journal of Machine Learning Research (JMLR)
- Neural Computation
- International Journal of Computer Vision (IJCV)
- Information and Inference (a Journal of the IMA)
- Applied and Computational Harmonic Analysis (ACHA)
- Communications on Pure and Applied Mathematics (CPAM)
- Mathematical Programming
- Journal of Visual Communication and Image Representation (JVIS)
- Neurocomputing (Elsevier)
- PLOS ONE

Review for Conferences

- Computer Vision: International Conference on Computer Vision (ICCV), European Conference on Computer Vision (ECCV), Computer Vision and Pattern Recognition (CVPR), Asian Conference on Computer Vision (ACCV), AAAI Conference on Artificial Intelligence (AAAI)
- Machine Learning: Neural Information Processing Systems (NIPS), International Conference on Machine Learning (ICML), International Conference on Learning Representation (ICLR), Algorithmic Learning Theory (ALT)
- Information Theory: International Symposium on Information Theory (ISIT)

(update: 15th Feb, 2025)