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Education

- 2008-2012 *University of California, Los Angeles (UCLA)*, Los Angeles, CA, USA
Ph.D. in Mathematics, 2012
Dissertation: [Image and Signal Processing with Non-Gaussian Noise: EM-Type Algorithms and Adaptive Outlier Pursuit](#)
Advisor: Professor [Luminita A. Vese](#)
- 2001-2008 *University of Science and Technology of China (USTC)*, Hefei, Anhui, China
M.S. in Mathematics, 2008
B.S. in Mathematics, 2005

Employment

- 07/2015-present *Michigan State University (MSU)*, East Lansing, MI, USA
Assistant Professor, Department of Computational Mathematics, Science and Engineering
Assistant Professor, Department of Mathematics
- 07/2014-06/2015 *University of California, Los Angeles*, Los Angeles, CA, USA
Assistant Adjunct Professor, Department of Mathematics
- 07/2013-06/2014 *University of California, Los Angeles*, Los Angeles, CA, USA
Postdoctoral Scholar, Department of Mathematics
- 07/2012-06/2013 *Rice University*, Houston, TX, USA
Postdoctoral Fellow, Department of Computational and Applied Mathematics

Grants

- 09/2016-08/2019 Single-PI, NSF DMS-1621798 (\$150,000)

Publications

(A) Book Chapters

1. **M. Yan** and W. Yin, [Self equivalence of the alternating direction method of multipliers](#), in *R. Glowinski, S. Osher, and W. Yin (Eds.), Splitting Methods in Communication and Imaging, Science and Engineering* (2017), New York, Springer, 165-194.

(B) Journal Articles

2. L. Chen, **M. Yan**, C. Qian, N. Xi, Z. Zhou, Y. Yang, B. Song, and L. Dong, [Nonconvex compressive video sensing](#), *Journal of Electronic Imaging*, 25 (2016), 063003.
3. H. Zhang, W. Yin, and **M. Yan**, [One condition for solution uniqueness and robustness of both l1-synthesis and l1-analysis minimizations](#), *Advances in Computational Mathematics*, 42 (2016), 1381–1399.
4. Z. Peng, Y. Xu, **M. Yan**, and W. Yin, [ARock: an algorithmic framework for asynchronous parallel coordinate updates](#), *SIAM Journal on Scientific Computing*, 38 (2016), A2851–A2879.
5. F. Li, S. Osher, J. Qin, and **M. Yan**, [A multiphase image segmentation based on fuzzy membership functions and L1-norm fidelity](#), *Journal of Scientific Computing*, 69 (2016), 82–106.

6. Z. Peng, T. Wu, Y. Xu, **M. Yan**, and W. Yin, [Coordinate friendly structures, algorithms and applications](#), *Annals of Mathematical Sciences and Applications*, 1 (2016), 57–119.
7. X. Huang, L. Shi, and **M. Yan**, [Nonconvex sorted \$\ell_1\$ minimization for sparse approximation](#), *Journal of Operations Research Society of China*, 3 (2015), 207–229.
8. **M. Yan**, A. Bui, J. Cong, and L. A. Vese, [General convergent expectation maximization \(EM\)-type algorithms for image reconstruction](#), *Inverse Problems and Imaging*, 7 (2013), 1007–1029.
9. **M. Yan**, Y. Yang, and S. Osher, [Exact low-rank matrix completion from sparsely corrupted entries via adaptive outlier pursuit](#), *Journal of Scientific Computing*, 56 (2013), 433–449.
10. **M. Yan**, [Restoration of images corrupted by impulse noise and mixed Gaussian impulse noise using blind inpainting](#), *SIAM Journal on Imaging Sciences*, 6 (2013), 1227–1245.
11. **M. Yan**, [Convergence analysis of SART: optimization and statistics](#), *International Journal of Computer Mathematics*, 90 (2013), 30–47.
12. J. Chen, J. Cong, L. A. Vese, J. Villasenor, **M. Yan**, and Y. Zou, [A hybrid architecture for compressive sensing 3D CT reconstruction](#), *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, 2 (2012), 616–625.
13. **M. Yan**, Y. Yang, and S. Osher, [Robust 1-bit compressive sensing using adaptive outlier pursuit](#), *IEEE Transactions on Signal Processing*, 60 (2012), 3868–3875.
14. H. Han and **M. Yan**, [A mixed finite element method on a staggered mesh for Navier-Stokes equations](#), *Journal of Computational Mathematics*, 26 (2008), 816–824.
15. H. Han, **M. Yan**, and C. Wu, [An energy regularization method for the backward diffusion problem and its applications to image deblurring](#), *Communications in Computational Physics*, 4 (2008), 177–194.

(C) *Peer-Reviewed Conference Papers*

16. I. Baytas, **M. Yan**, A. Jain, and J. Zhou, [Asynchronous multi-task learning](#), *In: Proceedings of IEEE International Conference on Data Mining (ICDM 2016)*, 11–20.
17. Z. Peng, **M. Yan**, and W. Yin, [Parallel and distributed sparse optimization](#), *In: Proceedings of IEEE Asilomar Conference on Signals Systems and Computers*, 2013, 659–664. (**Best Student Paper Finalist**)
18. J. Chen, J. Cong, **M. Yan**, and Y. Zou, [FPGA-accelerated 3D reconstruction using compressive sensing](#), *In: Proceedings of the ACM/SIGDA International Symposium on Field Programmable Gate Arrays (FPGA 2012)*, 163–166.
19. **M. Yan**, [EM-type algorithms for image reconstruction with background emission and Poisson noise](#), *In: Proceedings of 7th International Symposium on Visual Computing*, Lecture Notes in Computer Science (LNCS), 6938 (2011), 33–42.
20. **M. Yan**, J. Chen, L. A. Vese, J. Villasenor, A. Bui, and J. Cong, [EM+TV based reconstruction for cone-beam CT with reduced radiation](#), *In: Proceedings of 7th International Symposium on Visual Computing*, Lecture Notes in Computer Science (LNCS), 6938 (2011), 1–10.
21. J. Chen, **M. Yan**, L. A. Vese, J. Villasenor, A. Bui, and J. Cong, [EM+TV for reconstruction of cone-beam CT with curved detectors using GPU](#), *In: Proceedings of International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2011, 363–366.
22. **M. Yan** and L. A. Vese, [Expectation maximization and total variation based model for computed tomography reconstruction from undersampled data](#), *In: Proceedings of SPIE Medical Imaging: Physics of Medical Imaging*, 7961 (2011), 79612X.

(D) *Submitted / Preprints*

23. X. Huang, Y. Xia, L. Shi, Y. Huang, **M. Yan**, J. Hornegger, and A. Maier, [Mixed one-bit compressive sensing with application to overexposure correction for CT reconstruction](#), arXiv:1701.00694, submitted.
24. Z. Peng, Y. Xu, **M. Yan**, and W. Yin, [On the convergence of asynchronous parallel iteration with arbitrary delays](#), arXiv: 1612.04425, submitted.
25. **M. Yan**, [A primal-dual three-operator splitting scheme](#), arXiv:1611.09805, submitted.

26. Y. Lou and M. Yan, [Fast l1-l2 minimization via a proximal operator](#), arXiv:1609.9530, submitted.

(E) Technical Reports and Other Publications

27. X. Huang, L. Shi, M. Yan, and J. Suykens, [Pinball loss minimization for one-bit compressive sensing](#), arXiv:1505.3898, 2015.
28. Q. Xu, M. Yan, and Y. Yao, [Fast adaptive least trimmed squares for robust evaluation of quality of experience](#), arXiv:1407.7636, 2014.
29. Z. Fan, F. Guan, C. Wu, and M. Yan, [The continuity of images by transmission imaging revisited](#), arXiv:1401.1558, 2014.
30. M. Yan, [General convergent expectation maximization \(EM\)-type algorithms for image reconstruction with background emission and Poisson noise](#), UCLA CAM 11-56, 2011.

Honors and Awards

2014	Nominee for Chancellor's Award for Postdoctoral Research, UCLA
2012-2014	AMS-Simons Travel Grant
2010	Chancellor's Fellowship, UCLA
2009	Horn-Moez Fellowship, UCLA
2008	Roy and Dorothy John Fellowship, UCLA
2005	Outstanding Graduate Scholarship, USTC
2002,2003,2004	Outstanding Student Scholarship, USTC

Presentations

Conference Presentations

03/01/2017	ARock: an algorithmic framework for asynchronous parallel coordinate updates, <i>SIAM Conference on Computational Science and Engineering</i> , Atlanta, GA
12/19/2016	A new primal-dual operator splitting scheme and its applications in image processing, <i>2016 International Workshop on Signal Processing, Optimization and Compressed Sensing</i> , Nankai University, Tianjin, China
12/18/2016	Primal-dual algorithms for the sum of three operators, <i>2016 Young Mathematician Forum</i> , Peking University, Beijing, China
05/25/2016	Nonconvex sorted L1 minimization for sparse approximation, <i>SIAM Conference on Imaging Science</i> , Albuquerque, NM
05/24/2016	ARock: an algorithmic framework for asynchronous parallel coordinate updates, <i>SIAM Conference on Imaging Science</i> , Albuquerque, NM
02/01/2016	Topics on mathematical image processing and parallel optimization, <i>SAMSI Optical Imaging Data Analysis Workshop</i> , Research Triangle Park, NC
11/04/2015	A framework of asynchronous parallel algorithms for monotone inclusions and optimization, <i>2015 INFORMS Annual Meeting</i> , Philadelphia, PA
11/01/2015	Self equivalence of the alternating direction method of multipliers, <i>2015 INFORMS Annual Meeting</i> , Philadelphia, PA
10/03/2015	ARock: an algorithmic framework for asynchronous parallel coordinate updates, <i>AMS Central Fall Sectional Meeting</i> , Chicago, IL
07/13/2015	Self equivalence of the alternating direction method of multipliers, <i>The International Symposium on Optimization</i> , Pittsburgh, PA
05/21/2014	Inverse scale space: New regularization path for sparse regression, <i>SIAM Conference on Optimization</i> , San Diego, CA
05/14/2014	Parallel and distributed sparse optimization, <i>SIAM Conference on Imaging Science</i> , Hong Kong
12/2013	Inverse scale space: New regularization path for sparse regression, <i>2013 International workshop on Signal Processing, Optimization and Compressed Sensing</i> , Harbin Institute of Technology, Harbin, China

- 02/2013 General convergent expectation maximization (EM)-type algorithms for image reconstruction, *CTW: Mathematical Challenges in Biomolecular/Biomedical Imaging and Visualization*, MBI, The Ohio State University, Columbus, OH
- 05/2012 Restoration of images corrupted by impulse noise using blind inpainting and ℓ_0 norm, *SIAM Conference on Imaging Science*, Philadelphia, PA
- 12/2011 Accelerating medical image reconstruction and analysis using domain specific computing (Exhibit), *RSNA 2011*, Chicago, IL
- 09/2011 EM+TV based reconstruction for cone-beam CT with reduced radiation, *7th International Symposium on Visual Computing*, Las Vegas, NV
- 09/2011 EM-type algorithms for image reconstruction with background emission and Poisson noise, *7th International Symposium on Visual Computing*, Las Vegas, NV
- 08/2011 Expectation maximization (EM)-type algorithms for image reconstruction (Poster), *Second Midwest Conference on Mathematical Methods for Images and Surfaces*, Department of Mathematics, Michigan State University, MI
- 07/2011 EM+TV for computerized tomography reconstruction, *7th International Congress on Industrial and Applied Mathematics*, Vancouver, BC, Canada
- 02/2011 Expectation maximization and total variation based model for computed tomography reconstruction from undersampled data, *SIAM Conference on Computational Science and Engineering*, Reno, NV
- 02/2011 Convergence analysis of SART by Bregman iteration and dual gradient descent, *SIAM Conference on Computational Science and Engineering*, Reno, NV
- 02/2011 Expectation maximization and total variation based model for computed tomography reconstruction from undersampled data (Poster), *SPIE Medical Imaging*, Orlando, FL
- 09/2010 Expectation maximization and total variation based model for computed tomography reconstruction from undersampled data, *Modern Trends in Optimization and Its Application*, IPAM, UCLA, CA
- 06/2010 An energy regularization method for the backward diffusion problem and its applications to image deblurring, *New Vistas in Image Processing and PDEs*, Center for Nonlinear Analysis, Carnegie Mellon University, Pittsburgh, PA
- 12/2007 An energy regularization method for the backward diffusion problem and its applications to image deblurring, *Fourth Pacific Rim Conference on Mathematics*, City University of Hong Kong, Hong Kong

Seminar and Colloquium Presentations

- 05/02/2017 A new primal-dual operator splitting scheme and its applications, *Department of Mathematics, University at Buffalo*, Buffalo, NY
- 03/10/2017 A new primal-dual operator splitting scheme and its applications, *Department of Mathematics, Hong Kong University of Science and Technology*, Hong Kong
- 01/06/2017 A primal-dual three-operator splitting, *School of Science and Engineering, Chinese University of Hong Kong, Shenzhen*, Shenzhen, China
- 12/14/2016 A primal-dual three-operator splitting, *Beijing International Center for Mathematical Research, Peking University*, Beijing, China
- 10/14/2016 ARock: an Asynchronous Parallel Algorithmic Framework, *Department of Mathematics, Applied Mathematics and Statistics, Case Western Reserve University*, OH
- 08/19/2016 ARock: an Asynchronous Parallel Algorithmic Framework, *Erlangen Graduate School in Advanced Optical Technologies, Friedrich-Alexander University Erlangen-Nürnberg*, Bavaria, Germany
- 08/03/2016 ARock: Asynchronous Parallel Coordinate Updates, *College of Mathematics and Statistics, Shenzhen University*, Shenzhen, China
- 07/22/2016 ARock: Asynchronous Parallel Coordinate Updates, *School of Computer Science and Engineering, Nanjing University of Science and Technology*, Nanjing, China
- 07/19/2016 ARock: Asynchronous Parallel Coordinate Updates, *School of Mathematical Sciences, USTC*, Hefei, China
- 07/08/2016 Asynchronous parallel computing in signal processing and machine learning, *School of Mathematical Sciences, Fudan University*, Shanghai, China
- 11/2015 Department of Mathematics, University of Alabama at Birmingham, AL
- 11/2015 Department of Mathematics, George Washington University, DC

10/2015	Department of Mathematics, Michigan State University, MI
10/2015	Electrical Engineering and Computer Science Department, University of Michigan, MI
02/2015	Department of Mathematics, University of Alabama, AL
01/2015	Department of Mathematics, Syracuse University, NY
01/2015	Department of Mathematics, Michigan State University, MI
01/2015	Department of Mathematics, North Carolina State University, NC
11/2014	Level Set Collective, Institute for Pure and Applied Mathematics, UCLA, CA
05/2014	School of Mathematical Sciences, Shanghai Jiaotong University, Shanghai, China
02/2014	Level Set Collective, Institute for Pure and Applied Mathematics, UCLA, CA
12/2013	School of Mathematical Sciences, Nankai University, Tianjin, China
12/2013	School of Mathematical Sciences, USTC, Hefei, China
12/2013	School of Mathematical Sciences, Fudan University, Shanghai, China
07/2012	Department of Mathematical Sciences, University of Texas, El Paso, TX
12/2011	School of Mathematical Sciences, Fudan University, Shanghai, China
12/2011	School of Mathematical Sciences, USTC, Hefei, China
11/2011	Image Processing Seminar, Department of Mathematics, UCLA, CA

Teaching Experience

Michigan State University

Fall 2017	CMSE 890: Optimization
Spring 2017	CMSE 202: Computational Modeling Tools & Techniques
Fall 2016	CMSE 802: Methods in Computational Modeling
Spring 2016	MTH 314: Matrix Algebra I

University of California, Los Angeles

Spring 2015	Math 142: Mathematical Modeling
Winter 2015	Math 115A: Linear Algebra
Fall 2014	Math 3B: Calculus for Life Sciences Students
Summer 2014	Math 164: Optimization

Rice University

Fall 2012	CAAM 654: Sparse Optimization
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Doctoral Students

09/2016-present	Ningyu Sha
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Postdocs and Visitors

09/2016-present	Zhi Li
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Other Students

Spring 2017	Katja Oklejas (MSU) Qi Lyu (Xi'an Jiaotong University) Zhenru Wang (MSU) Spring Semester 2017 Undergraduate Research
09/2016-present	Tyler Will (MSU)

09/2016-present	MSU Professorial Assistantship (PA) Program Andrew Schmidt (MSU)
Summer 2016	MSU Professorial Assistantship (PA) Program Siqi Zhang (South University of Science and Technology of China)
Summer 2014	MSU Internship in Global Engineering & Advanced Research (inGEAR) Jerry Luo (UCLA) Kayla Shapiro (University of California, Berkeley) Hao-Jun Michael Shi (UCLA) Qi Yang (University of Southern California) Kan Zhu (UCLA) UCLA Research Experiences for Undergraduates (REU). Publication: “Practical algorithms for learning near-isometric linear embeddings” , <i>SIAM Undergraduate Research Online</i> , 9 (2016), 178–195.

Professional Service

2010-present	Reviewer for Journals: Applied and Computational Harmonic Analysis IEEE Signal Processing Letters IEEE Transactions on Image Processing IEEE Transactions on Medical Imaging IEEE Transactions on Pattern Analysis and Machine Intelligence IEEE Transactions on Signal Processing Inverse Problems and Imaging Journal of Scientific Computing Mathematical Programming Mathematics of Computation SIAM Journal on Imaging Sciences SIAM Journal on Optimization and many others
2016-present	Reviewer for Conferences: Neural Information Processing Systems (NIPS) (2016) Artificial Intelligence and Statistics (AISTATS) (2017)
2014-present	Reviewer for Proposals: Research Grants Council (RGC) of Hong Kong (2014, 2015, 2016)
05/2014	Co-chair, Minisymposium on “Parallel and Distributed Computation in Imaging (I, II)”, SIAM Conference on Image Science, Hong Kong
08/2015	Co-organizer, The International Workshop on Mathematical Image Processing, Nankai University, Tianjin, China
05/2016	Co-chair, Minisymposium on “Parallel and Distributed Data Compression and Reconstruction in Imaging and High Performance Computing (I, II)”, SIAM Conference on Image Science, Albuquerque, NM
10/2016	Co-organizer, The 18th Midwest Optimization Meeting, Michigan State University, East Lansing, MI
05/2017	Co-chair, Minisymposium on “Optimizing Big Data: Acceleration, Randomization, and Parallelism (I, II, III)”, SIAM Conference on Optimization, Vancouver, British Columbia, Canada