

# Ming Yan

Michigan State University  
Department of CMSE  
Department of Mathematics  
619 Red Cedar Road  
East Lansing, MI 48824

Office: Wells Hall C301  
Phone: (517)353-8492  
Email: [yanm@math.msu.edu](mailto:yanm@math.msu.edu)  
Homepage: <http://www.math.msu.edu/~yanm/>

## 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

## Publications

### (A) Book Chapters

1. **M. Yan** and W. Yin, [Self equivalence of the alternating direction method of multipliers](#), to appear.

### (B) Journal Articles

2. 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.
3. **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.
4. **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.
5. **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.
6. **M. Yan**, [Convergence analysis of SART: optimization and statistics](#), *International Journal of Computer Mathematics*, 90 (2013), 30–47.
7. 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.

8. **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.
9. 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.
10. 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*

11. 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**)
12. 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.
13. **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.
14. **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.
15. 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.
16. **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 / Under Review*

17. Z. Peng, Y. Xu, **M. Yan**, and W. Yin, [ARock: an algorithmic framework for asynchronous parallel coordinate updates](#).
18. X. Huang, L. Shi, **M. Yan**, and J. A.K. Suykens, [Pinball loss minimization for one-bit compressive sensing](#).
19. F. Li, S. Osher, J. Qin, and **M. Yan**, [A multiphase image segmentation based on fuzzy membership functions and L1-norm fidelity](#), UCLA CAM 15-21, 2015.
20. W. Hsu, S. Shen, Y.-K. Choi, **M. Yan**, L. Vese, J. Cong, and A. Bui, [Compressed sensing-based reconstruction of low-dose computed tomography: Applications in lung cancer screening](#).
21. Q. Xu, **M. Yan** and Y. Yao, [Fast adaptive least trimmed squares for robust evaluation of quality of experience](#), UCLA CAM 14-60, 2014.
22. Z. Fan, F. Guan, C. Wu and **M. Yan**, [The continuity of images by transmission imaging revisited](#), 2014.
23. H. Zhang, W. Yin and **M. Yan**, [One condition for solution uniqueness and robustness of both l1-synthesis and l1-analysis minimizations](#), 2013.

(E) *Technical Reports and Other Publications*

24. **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

05/2016	Nonconvex sorted L1 minimization for sparse approximation, <i>SIAM Conference on Imaging Science</i> , Albuquerque, NM
11/2015	ARock: an algorithmic framework for asynchronous parallel coordinate updates, <i>2015 INFORMS Annual Meeting</i> , Philadelphia, PA
11/2015	Self equivalence of the alternating direction method of multipliers, <i>2015 INFORMS Annual Meeting</i> , Philadelphia, PA
10/2015	ARock: an algorithmic framework for asynchronous parallel coordinate updates, <i>AMS Central Fall Sectional Meeting</i> , Chicago, IL
07/2015	Self equivalence of the alternating direction method of multipliers, <i>The International Symposium on Optimization</i> , Pittsburgh, PA
05/2014	Inverse scale space: New regularization path for sparse regression, <i>SIAM Conference on Optimization</i> , San Diego, CA
05/2014	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, China
02/2013	General convergent expectation maximization (EM)-type algorithms for image reconstruction, <i>CTW: Mathematical Challenges in Biomolecular/Biomedical Imaging and Visualization</i> , MBI, The Ohio State University, Columbus, OH
05/2012	Restoration of images corrupted by impulse noise using blind inpainting and $\ell_0$ norm, <i>SIAM Conference on Imaging Science</i> , Philadelphia, PA
12/2011	Accelerating medical image reconstruction and analysis using domain specific computing (Exhibit), <i>RSNA 2011</i> , Chicago, IL
09/2011	EM+TV based reconstruction for cone-beam CT with reduced radiation, <i>7th International Symposium on Visual Computing</i> , Las Vegas, NV
09/2011	EM-type algorithms for image reconstruction with background emission and Poisson noise, <i>7th International Symposium on Visual Computing</i> , Las Vegas, NV
08/2011	Expectation maximization (EM)-type algorithms for image reconstruction (Poster), <i>Second Midwest Conference on Mathematical Methods for Images and Surfaces</i> , Department of Mathematics, Michigan State University, MI
07/2011	EM+TV for computerized tomography reconstruction, <i>7th International Congress on Industrial and Applied Mathematics</i> , Vancouver, BC, Canada
02/2011	Expectation maximization and total variation based model for computed tomography reconstruction from undersampled data, <i>SIAM Conference on Computational Science and Engineering</i> , Reno, NV
02/2011	Convergence analysis of SART by Bregman iteration and dual gradient descent, <i>SIAM Conference on Computational Science and Engineering</i> , Reno, NV
02/2011	Expectation maximization and total variation based model for computed tomography reconstruction from undersampled data (Poster), <i>SPIE Medical Imaging</i> , Orlando, FL
09/2010	Expectation maximization and total variation based model for computed tomography reconstruction from undersampled data, <i>Modern Trends in Optimization and Its Application</i> , IPAM, UCLA, CA
06/2010	An energy regularization method for the backward diffusion problem and its applications to image deblurring, <i>New Vistas in Image Processing and PDEs</i> , 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*

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*

Spring 2016                MTH 314: Linear 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  
 Winter 2014                Psyctry M284B: Principles of Neuroimaging II (Guest-Lecturer)  
 Winter 2014                BioEngr 298: Signal and Image Processing for Biomedicine (Guest-Lecturer)

### *Rice University*

Fall 2012                    CAAM 654: Sparse Optimization (Co-Instructor)

### *University of California, Los Angeles (Teaching Assistant)*

Winter 2010                Math 3C: Calculus for Life Sciences Students  
 Fall 2009                    Math 3C: Calculus for Life Sciences Students  
 Spring 2009                Math 2: Finite Mathematics  
 Spring 2009                Math 3C: Calculus for Life Sciences Students

### *University of Science of Technology of China (Teaching Assistant)*

Spring 2008	Complex Variables (Department of Mathematics)
Fall 2007	Calculus (School of Information Science and Technology)
Spring 2007	Mathematical Analysis II (Special Class for the Gifted Young)
Fall 2006	Mathematical Analysis I (Special Class for the Gifted Young)
Spring 2006	Partial Differential Equation (Department of Mathematics)
Fall 2005	Numerical Analysis (Department of Mathematics)
Fall 2005	Numerical Algebra (Department of Mathematics)

## Mentors

Summer 2014	Mentor for UCLA applied math REU (Research Experiences for Undergraduates) on large data analysis. (Jerry Luo, Kayla Shapiro, Hao-Jun Michael Shi, Qi Yang, Kan Zhu)
Summer 2010	Mentor for UCLA SMARTS (Science Mathematics Achievement and Research Technology for Students) on image processing and parallel computing.

## Professional Service

2010-present	Reviewer, <a href="#">Applied and Computational Harmonic Analysis</a> , <a href="#">Communications in Mathematical Sciences</a> , <a href="#">Computers in Biology and Medicine</a> , <a href="#">Digital Signal Processing</a> , <a href="#">EURASIP Journal on Advances in Signal Processing</a> , <a href="#">IEEE Signal Processing Letters</a> , <a href="#">IEEE Transactions on Image Processing</a> , <a href="#">IEEE Transactions on Medical Imaging</a> , <a href="#">IEEE Transactions on Signal Processing</a> , <a href="#">IEICE Transactions on Information and Systems</a> , <a href="#">International Journal of Computer Mathematics</a> , <a href="#">Inverse Problems and Imaging</a> , <a href="#">Journal of Electronic Imaging</a> , <a href="#">Journal of Mathematical Analysis and Applications</a> , <a href="#">Journal of Scientific Computing</a> , <a href="#">Journal of Visual Communication and Image Representation</a> , <a href="#">Knowledge-Based Systems</a> , <a href="#">Mathematics of Computation</a> , <a href="#">Methods and Applications of Analysis</a> , <a href="#">Neural Computing and Applications</a> , <a href="#">Neurocomputing</a> , <a href="#">Optimization Letters</a> , <a href="#">Sensing and Imaging</a> , <a href="#">SIAM Journal on Imaging Sciences</a> , <a href="#">SIAM Journal on Optimization</a> , <a href="#">Signal, Image and Video Processing</a> , <a href="#">Signal Processing</a>
2014,2015	Reviewer, Research Grants Council (RGC) of Hong Kong
07/2012	Technical Program Committee, <a href="#">International Conference on Information Sciences</a> , <a href="#">Signal Processing and their Applications</a>
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, 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