

# Weiyu Xu

## School Address

Department of Electrical and Computer Engineering  
University of Iowa  
Iowa City, IA 52242  
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## RESEARCH SUMMARY

My research interests are signal processing, optimization and high dimensional data analytics. I am particularly interested in the role of optimization and high dimensional convex geometry in providing novel computational solutions to signal processing and high dimensional data analytics. Specific topics of my research include compressed sensing, low-rank matrix recovery, super-resolution, signal processing for communications, and optimizations for novel medical imaging and radiotherapy cancer treatment planning technologies.

## EDUCATION

### *Ph.D. in Electrical Engineering*

California Institute of Technology, Pasadena, CA 7/2006- 8/2009  
THESIS - Compressive Sensing for Sparse Approximations: Constructions, Algorithms and Analysis  
Thesis advisor: Prof. Babak Hassibi  
Thesis Defense Date: 8/13/2009

### *M.S. in Electrical Engineering*

California Institute of Technology, Pasadena, CA 9/2005- 6/2006

### *M.S. in Electronic Engineering*

Tsinghua University, Beijing, China, 2002- 2005  
Thesis: Research on Detection Algorithms for MIMO Wireless Systems

### *B.E. in Information Engineering*

Beijing University of Posts and Telecommunications, Beijing, China. 1998-2002

## PROFESSIONAL EXPERIENCE

University of Iowa, Iowa City, IA 7/2018 – present  
Associate Professor Department of Electrical and Computer Engineering

University of Iowa, Iowa City, IA 7/2018 – present  
Associate Professor Applied Mathematical and Computational Sciences (AMCS)

Hong Kong University of Science and Technology, Hong Kong 8/2017  
Visiting Scholar Department of Mathematics

University of Iowa, Iowa City, IA 7/2015 – 6/2018  
Assistant Professor Applied Mathematical and Computational Sciences (AMCS)

University of Iowa, Iowa City, IA 1/2012 – 6/2018  
Assistant Professor Department of Electrical and Computer Engineering

### BOOK CHAPTERS

1. Weiyu Xu and Babak Hassibi, Fundamental Thresholds in Compressed Sensing: A High-Dimensional Geometry Approach, *Compressed Sensing: Theory and Applications*, Cambridge Press, 2012

### JOURNAL PUBLICATIONS

1. Haider Ali Jasim Alshamary, Tareq Al-Naffouri, Alam Zaib, and Weiyu Xu, Optimal non-coherent data detection for massive SIMO wireless systems with general constellations: A polynomial complexity solution, under review, 2018.
2. Myung Cho, Weiyu Xu and Lifeng Lai, Compressed hypothesis testing: to mix or not to mix?, under review, 2018.
3. Christos Thrampoulidis, Weiyu Xu, and Babak Hassibi, Symbol Error Rate Performance of Box-Relaxation Decoders in Massive MIMO, *IEEE Transactions on Signal Processing*, vol. 66, no. 13, pp. 3377-3391, 2018.
4. Quentin Adams, Karolyn M. Hopfensperger, Yusung Kim, Xiaodong Wu, Weiyu Xu, Hemant Shukla, James McGee, Joseph M. Caster, and Ryan T. Flynn, Effectiveness of Rotating Shield Brachytherapy for Prostate Cancer Dose Escalation and Urethral Sparing, *International Journal of Radiation Oncology Biology Physics (IJROBP)*, <https://doi.org/10.1016/j.ijrobp.2018.07.2015>
5. Myung Cho, Kumar Vijay Mishra, and Weiyu Xu, Computable performance guarantees for compressed sensing matrices, *EURASIP Journal on Advances in Signal Processing*, 2018.
6. Myung Cho, Xiaodong Wu, Hossein Dakhah, Jirong Yi, Ryan Flynn, Yusung Kim, and Weiyu Xu, Fast dose optimization for rotating-shield brachytherapy, *Medical Physics*, 44(10), pp. 5384-5392, doi: 10.1002/mp.12486, 2017.
7. Alam Zaib, Mudassir Masood, Anum Ali, Weiyu Xu, and Tareq Y. Al-Naffouri, Distributed channel estimation and pilot contamination analysis for massive MIMO-OFDM systems, *IEEE Transactions on Communications*, vol. 64, no. 11, pp. 4607-4621, Nov. 2016.
8. Jun Geng, Weiyu Xu, and Lifeng Lai, Quickest sequential multiband spectrum sensing with mixed observations, *IEEE Transactions on Signal Processing*, vol. 64, no. 22, pp. 5861-5874, 2016.
9. Jian-Feng Cai, Xiaobo Qu, Weiyu Xu, and Gui-Bo Ye, Robust recovery of complex exponential signals from random Gaussian measurements via low rank Hankel matrix reconstruction, *Applied and Computational Harmonic Analysis*, Volume 41, Issue 2, pp. 470-490, 2016.
10. Myung Cho, Kumar Vijay Mishra, Jian-Feng Cai, and Weiyu Xu, Block Iterative reweighted algorithms for super-resolution of spectrally sparse signals, *IEEE Signal Processing Letters*, vol. 22, no. 12, pp. 2319-2323, 2015.
11. Yunlong Liu, Ryan Flynn, Yusung Kim, Sudershan Bhatia, John Buatti, Weiyu Xu, and Xiaodong Wu, Paddle-based rotating-shield brachytherapy, *Medical Physics*, 42, pp. 5992-6003, DOI:<http://dx.doi.org/10.1118/1.4930807>, 2015.
12. A. Khajehnejad, W. Xu, S. Avestimehr, and B. Hassibi, Improving the thresholds of sparse recovery: an analysis of a two-step reweighted Basis Pursuit algorithm, *IEEE Transactions on Information Theory*, vol.61, no.9, pp.5116-5128, 2015.
13. Kumar Vijay Mishra, Myung Cho, Anton Kruger, and Weiyu Xu, Spectral super-resolution with prior knowledge, *IEEE Transactions on Signal Processing*, vol. 63, no. 20, pp. 5242-5256, 2015.

14. Jian-Feng Cai and Weiyu Xu, Guarantees of total variation minimization for signal recovery, *Information and Inference: a Journal of Institute of Mathematics and its Applications (IMA)*, UK, doi:10.1093/imaiai/iav00, 2015.
15. M. Wang, Weiyu Xu, E. Mallada and A. Tang, Sparse recovery with graph constraints, *IEEE Transactions on Information Theory*, vol. 61, no. 2, pp. 1028-1044, 2015.
16. Weiyu Xu, Er-Wei Bai, and Myung Cho, Outliers and random noises in system identification: a compressed sensing approach, *Automatica*, vol. 50, no. 11, pp. 2905-2911, 2014.
17. Babak Hassibi, Morten Hansen, Alexandros Georgios Dimakis, Haider Ali Jasim Alshamary and Weiyu Xu, Optimized Markov Chain Monte Carlo for signal detection in MIMO systems: an analysis of stationary distribution and mixing Time, *IEEE Transactions on Signal Processing*, vol. 72, no. 17, pp. 4436-4450, 2014.
18. Er-Wei Bai, Kang Li, Wenxiao Zhao, and Weiyu Xu, Kernel based approaches to local nonlinear non-parametric variable selection, *Automatica*, vol. 50, pp.100-113, 2014.
19. Weiyu Xu, M. Wang and A. Tang, Sparse recovery from nonlinear measurements with applications in bad data detection for power networks, *IEEE Transactions on Signal Processing*, vol. 61, no. 24, pp. 6175-6187, 2013
20. T. Al-Naffouri, A. Dahman, M. Sohail, W. Xu, and B. Hassibi, Low complexity blind equalization for OFDM systems with general constellations, *IEEE Transactions on Signal Processing*, vol. 60, no. 12, pp. 6395-6407, 2012.
21. T. Liu, W. Xu, P. Spincemaille, S. Avestimehr, and Y. Wang, Accuracy of the morphology enabled dipole inversion (MEDI) algorithm for quantitative susceptibility mapping in MRI, *IEEE Transactions on Medical Imaging*, vol. 31, no. 3, pp. 816-824, 2012.
22. W. Xu and B. Hassibi, Precise stability phase transitions for L1 minimization: a unified geometric framework, *IEEE Transactions on Information Theory*, vol.57, no.10, pp. 6894-6919, 2011.
23. W. Xu and A. Tang, A generalized coupon collector Problem, *Journal of Applied Probability*, 48(4), pp. 1081-1094, 2011.
24. M. Wang, W. Xu, and A. Tang, On the performance of sparse recovery via  $\ell_p$  minimization ( $0 \leq p \leq 1$ ), *IEEE Transactions on Information Theory*, vol. 55, no. 9, pp. 4299-4308, 2011.
25. M. Wang, C. Tan, Weiyu Xu and A. Tang, Cost of not splitting in routing: characterization and estimation, *IEEE/ACM Transactions on Networking*, vol. 19, no. 6, pp. 1849-1859, 2011
26. M. Wang, Weiyu Xu and A. Tang, A unique “nonnegative” solution to an underdetermined system: from vectors to matrices, *IEEE Transactions on Signal Processing*, vol. 59, no. 3, 2011.
27. A. Khajehnejad, W. Xu, S. Avestimehr, and B. Hassibi, Analyzing weighted  $\ell_1$  minimization for sparse recovery with nonuniform sparse models, *IEEE Transactions on Signal Processing*, vol. 59, no.5, pp. 1985-2001, 2011.
28. A. Khajehnejad, A. Dimakis, Weiyu Xu, B. Hassibi, Sparse recovery of nonnegative signals with minimal expansion, *IEEE Transactions on Signal Processing*, vol. 59, no. 1, pp. 196 - 208, 2011.
29. B. Recht, Weiyu Xu, and B. Hassibi, Null space conditions and thresholds for rank minimization, *Mathematical Programming, Series B*, vol. 127, pp. 175-202, 2011.
30. S. Jafarpour, Weiyu Xu, B. Hassibi, and R. Calderbank, Efficient and robust compressed sensing using high-quality expander graphs, *IEEE Transactions on Information Theory*, vol. 55, no.9, pp. 4299-4308, 2009.
31. A. Li, Y. Wang, Weiyu Xu, and Z. Zhou, Energy efficient space-time diversity schemes for wireless sensor networks, *Journal of Tsinghua University (Science and Technology)*, vol. 4, 2006.

## CONFERENCE PUBLICATIONS

1. Weiyu Xu, Jirong Yi (co-first author), Soura Dasgupta, Jian-Feng Cai, Mathews Jacob, and Myung Cho, Separation-Free Super-Resolution from Compressed Measurements is Possible: an Orthonormal Atomic Norm Minimization Approach,” 2018 IEEE International Symposium on Information Theory (ISIT), Vail, Colorado, U.S.A., 2018.
2. Sven Jacobsson, Weiyu Xu, Giuseppe Durisi and Christoph Studer, MSE-Optimal 1-BIT precoding for Multiuser MIMO via Branch and Bound, 2018 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2018.
3. Myung Cho, Christos Thrampoulidis, Weiyu Xu, Babak Hassibi, Phaseless super-resolution in the continuous domain, 42nd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar. 2017.
4. Jian-Feng Cai, Weiyu Xu, and Yang Yang, Large scale 2D spectral compressed sensing in continuous domain, 42nd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar. 2017.
5. Jun Geng, Weiyu Xu, Lifeng Lai, Identifying correlated components in high-dimensional multivariate Gaussian models, 42nd IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar. 2017.
6. Haider Ali Jasim Alshamary and Weiyu Xu, Efficient Optimal Joint Channel Estimation and Data Detection for Massive MIMO Systems, Proceedings of IEEE International Symposium on Information Theory (ISIT), 2016.
7. Christos Thrampoulidis, Ehsan Abbasi, Weiyu Xu, and Babak Hassibi, BER analysis of the box relaxation for BPSK signal recovery, 41st IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, Mar. 2016.
8. Myung Cho, Jian-Feng Cai, Suhui Liu, Yonina C. Eldar, and Weiyu Xu, Fast alternating projected gradient descent algorithms for recovering spectrally sparse signals, 41st IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, Mar. 2016.
9. Bingwen Zhang, Weiyu Xu, Jian-Feng Cai and Lifeng Lai, Precise Phase transition of total variation minimization, 41st IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, Mar. 2016.
10. Jun Geng, Weiyu Xu and Lifeng Lai, Detection of correlated components in multivariate Gaussian models, Proceedings of 2015 IEEE Information Theory Workshop, Jeju Island, 2015.
11. Jian-Feng Cai, Suhui Liu and Weiyu Xu, A fast algorithm for reconstruction of spectrally sparse signals in super-resolution, Proc. SPIE 9597, Wavelets and Sparsity XVI, 95970A, 2015
12. Haider Ali Jasim Alshamary, Md Fahim Anjum, Tareq Al-Naffouri, Alam Zaib, and Weiyu Xu, Optimal non-coherent data detection for massive SIMO wireless systems with general constellations: A polynomial complexity solution, IEEE Signal Processing Workshop, 2015.
13. Kumar Vijay Mishra, Myung Cho, Anton Kruger, and Weiyu Xu, Super-resolution line spectrum estimation with block priors, Proceedings of Asilomar Conference on Signals, Systems, and Computers, 2014.
14. Haider Alshamary, and Weiyu Xu, Maximum-Likelihood Joint channel estimation and data detection for space time block coded MIMO systems, Proceedings of Asilomar Conference on Signals, Systems, and Computers, 2014.
15. Kumar Vijay Mishra, Myung Cho, Anton Kruger, and Weiyu Xu, Off-The-Grid spectral compressed sensing with prior information, Proceedings of International Conference on Acoustics, Speech, and Signal Processing, 2014.
16. Weiyu Xu, Jian-Feng Cai, Kumar Vijay Mishra, Myung Cho, and Anton Kruger, Precise semidefinite programming formulation of atomic norm minimization for recovering  $d$ -Dimensional( $d \geq 2$ ) off-the-grid frequencies, Proceedings of Information Theory and Applications Workshop, 2014

17. Myung Cho and Weiyu Xu, New algorithms for verifying the null space conditions in compressed sensing, Proceedings of Asilomar Conference on Signals, Systems, and Computers, 2013.
18. Weiyu Xu and Jian-Feng Cai, Guarantees of Total Variation Minimization for Signal Recovery, Proceedings of Allerton Conference on Communication, Control and Computing, 2013.
19. Weiyu Xu and Lifeng Lai, Compressed Hypothesis Testing: to Mix or Not to Mix?, Proceedings of Allerton Conference on Communication, Control and Computing, 2013.
20. Er-Wei Bai, Kang Li, Wenxiao Zhao, Weiyu Xu, Local variable selection and dimension determination of nonlinear non-parametric systems, Proceedings of IEEE Conference on Decision and Control, 2013.
21. Jun Geng, Weiyu Xu and Lifeng Lai, Quickest search over multiple sequences with mixed observations, Proceedings of the International Symposium on Information Theory, 2013.
22. Weiyu Xu, Er-Wei Bai and Myung Cho, Toeplitz matrix based sparse error correction in system identification: outliers and random noises, Proceedings of International Conference on Acoustics, Speech, and Signal Processing, 2013.
23. Hema Kumari Achanta, Weiyu Xu, and Soura Dasgupta, Matrix design for optimal sensing, Proceedings of International Conference on Acoustics, Speech, and Signal Processing, 2013.
24. Meng Wang, Weiyu Xu, and Robert Calderbank, Compressed sensing with corrupted participants, Proceedings of International Conference on Acoustics, Speech, and Signal Processing, 2013.
25. Weiyu Xu, On the mixing time of Markov Chain Monte Carlo for Integer Least-Square problems, IEEE conference on Decision and Control, 2012.
26. M. Wang, W. Xu, E. Mallada, and A. Tang, Sparse recovery with graph constraints: fundamental limits and measurement construction, Proceedings of IEEE International Conference on Computer Communications, Orlando, 2012. ( acceptance rate 17.9% )
27. W. Xu, M. Wang and A. Tang, On state estimation with bad data detection, Proceedings of IEEE conference on Decision and Control, 2011.
28. Weiyu Xu and A. Tang, Recent results on sparse recovery over graphs, (Invited Paper), Proceedings of Asilomar Conference on Signals, Systems and Computers, 2011.
29. Weiyu Xu and A. Tang, On the scaling law for compressive sensing and its applications, Proceedings of Conference on Information Science and Systems, 2011.
30. Weiyu Xu, E. Mallada and A. Tang, Compressive sensing over graphs, Proceedings of the 30th IEEE International Conference on Computer Communications (IEEE INFOCOM 2011), Shanghai, 2011. (acceptance rate 15.9% )
31. Weiyu Xu and A. Tang, Compressive sensing over graphs: how many measurements are needed? Proceedings of 46th Annual Allerton Conference on Communication, Control, and Computing, 2010.
32. M. Wang, Weiyu Xu and A. Tang, The limits of error correction with Lp decoding, Proceedings of the International Symposium on Information Theory, 2010.
33. Weiyu Xu, and A. Tang, On the dynamics of  $\ell_1$  decoding: a microscopic approach, Proceedings of the International Symposium on Information Theory, 2010.
34. Weiyu Xu and A. Tang, On the uniqueness of positive semidefinite matrix solution under compressed observations, Proceedings of the International Symposium on Information Theory, 2010.
35. A. Khajehnejad, Weiyu Xu, S. Avestimehr and B. Hassibi, Improved Sparse Recovery Thresholds with Two-Step Reweighted Minimization, Proceedings of the International Symposium on Information Theory, 2010.
36. Weiyu Xu, A. Khajehnejad, S. Avestimehr and B. Hassibi, Breaking through the thresholds: an analysis for iterative reweighted minimization via the Grassmann Angle Framework, (Invited Paper), Proceedings of International Conference on Acoustics, Speech, and Signal Processing, 2010.
37. M. Hansen, B. Hassibi, A. Dimakis and Weiyu Xu, Near-optimal detection in MIMO systems using Gibbs sampling, Proceedings of GLOBECOM, 2009.

38. Weiyu Xu and B. Hassibi, On sharp performance bounds for robust sparse signal recoveries, Proceedings of the International Symposium on Information Theory, 2009.
39. A. Khajehnejad, Weiyu Xu, S. Avestimehr and B. Hassibi, Weighted minimization for sparse recovery with prior information, Proceedings of International Symposium on Information Theory, 2009
40. B. Recht, Weiyu Xu and B. Hassibi, Necessary and sufficient conditions for success of the nuclear norm heuristic for rank minimization, Proceedings of the 47th IEEE Conference on Decision and Control, 2008.
41. Weiyu Xu and B. Hassibi, Compressive sensing over the Grassmann manifold: a unified analytical framework, Proceedings of 46th Annual Allerton Conference on Communication, Control, and Computing, 2008.
42. M. Stojnic, Weiyu Xu and B. Hassibi, Compressed sensing of approximately sparse signals, Proceedings of IEEE International Symposium on Information Theory, pp. 2182-2186, 2008.
43. Weiyu Xu, M. Stojnic and B. Hassibi, On exact maximum-likelihood detection for non-coherent MIMO wireless systems: a Branch-Estimate-Bound optimization framework, Proceedings of the International Symposium on Information Theory, pp. 2017-2021, 2008
44. Weiyu Xu, M. Stojnic and B. Hassibi, Low-complexity blind maximum-likelihood detection for SIMO systems with general constellations, Proceedings of International Conference on Acoustics, Speech, and Signal Processing, 2008.
45. M. Stojnic, Weiyu Xu and B. Hassibi, Compressed sensing - probabilistic analysis of a null-space characterization, Proceedings of International Conference on Acoustics, Speech, and Signal Processing, 2008.
46. Weiyu Xu and B. Hassibi, Further Results on Performance Analysis for Compressive Sensing Using Expander Graphs, Proceedings of the Asilomar Conference on Signals, Systems, and Computers, November, 2007.
47. Weiyu Xu and B. Hassibi, Efficient compressive sensing with deterministic guarantees using expander graphs, Proceedings of IEEE Information Theory Workshop, Lake Tahoe, 2007.
48. Weiyu Xu and B. Hassibi, On the complexity of exact maximum-likelihood decoding for asymptotically good Low Density Parity Check codes: a new perspective, Proceedings of IEEE Information Theory Workshop, 2007.
49. Weiyu Xu and B. Hassibi, A new exact closest lattice point search algorithm using linear constraints, Proceedings of IEEE Signal Processing Advances in Wireless Communication Workshop, Helsinki, 2007.
50. M. Li, B. Bruno, Weiyu Xu, N. B. David and F. Catthoor, The optimization of near-ML MIMO detector for parallel programmable architectures, Proceedings of IEEE/ACM Design Automation and Test in Europe (DATE), 2008
51. Weiyu Xu, Youzheng Wang, Zucheng Zhou and Jing Wang, A computationally efficient exact ML sphere decoder, Proceedings of IEEE Global Communications Conference, December, 2004.
52. Weiyu Xu, Richard Yao, Zihua Guo, Wenwu Zhu and Zucheng Zhou, A power efficient M-ary orthogonal pulse polarity modulation for TH-UWB system using modified OVFS codes, Proceedings of IEEE Global Communications Conference, 2003.

## PATENTS

1. Richard Yao, Zihua Guo, Weiyu Xu and Wenwu Zhu, "Orthogonal Pulse Polarity Modulation," US Patent No 7636380. Assignee: Microsoft Corporation (Redmond, WA, US)

## HONORS AND AWARDS

Iowa Energy Center Impacts Award in Renewable Energy,	2016
IP Stanley International Travel Award,	2016
Old Gold Summer Fellowship,	2013
Charles and Ellen Wilts Doctoral Research Prize, California Institute of Technology,	2010
Finalist Paper for Best Student Paper Award at International Symposium on Information Theory,	2010
Finalist Paper for Best Student Paper Award at ICASSP,	2008
Information Science and Technology Fellowship, California Institute of Technology,	2005
Outstanding Graduate Student Award, Tsinghua University,	2005
First class Graduate Student Scholarship, Tsinghua University,	2005
Distinguished Scholarship, School of Information Engineering, Beijing University of Posts and Telecommunications,	2002
Meritorious Prize for the International Mathematical Contest in Modeling, U.S.A.,	2001
First class prize in Beijing College Students Physics Competition,	2000

## STUDENT ADVISING

### Ph.D. students:

Hui Xie (in progress)

Jirong Yi (in progress)

Yang Yang (in progress)

Tianming Wang (graduated in Spring 2018, now postdoc at University of Texas at Austin)

Hanqin Cai (graduated in Spring 2018, now adjunct assistant professor at University of California, Los Angeles)

Myung Cho (graduated in Spring 2017, first position at Ohio State University and Carnegie Mellon University)

Suhui Liu (graduated in Spring 2017, now assistant professor at Wuhan Institute of Technology, China)

Haider Ali Jasim Alshamary (graduated in Spring 2017, now assistant professor at the University of Diyala, Iraq)

Hema Kumari Achanta (co-advised with Professor Soura Dasgupta. Graduated in Fall 2014, now Control Systems Engineer at GE Global Research, New York)

## PRESENTATIONS and TALKS

Besides talks given at conferences when our contributed papers are accepted, I also gave the following invited talks:

1. Invited talk, Iowa State University, September, 2017.
2. Invited talk, Hong Kong University of Science and Technology, August 2017.
3. Invited talk, SPIE Optics + Photonics conference, Wavelets and Sparsity XVII, August, 2017.
4. Invited talk, the 9th Applied Inverse Problem Conference, May, 2017.
5. Invited talk, EE Systems Seminar, California Institute of Technology, May 2017.
6. Invited talk, University of California at Davis, May 2017.
7. Graduate seminar, University of Iowa, February 2017.
8. Invited talk, University of Illinois at Urbana Champaign, April 2016.
9. Invited talk, AMCS seminar, University of Iowa, April 2016.

10. Invited talk, Department of Computer Science, University of Iowa, 2016.
11. Invited talk, IMA Workshop on Optimization and Parsimonious Models, Institute of Mathematics and its Applications (IMA), University of Minnesota, January 2016.
12. Invited talk, Colorado State University, August 2015.
13. Invited talk, Information Theory and Applications (ITA) Workshop, University of California at San Diego, February, 2014.
14. Invited talk, Asilomar Conference on Signals, Systems and Computers, 2013.
15. Invited talk, University of Arkansas at Little Rock, 2012.
16. Invited talk, Asilomar Conference on Signals, Systems and Computers, 2011.
17. Invited talk, University of Massachusetts at Amherst, 2011.
18. Invited talk, SIAM Annual Meeting, 2010.
19. Invited talk, California Institute of Technology, 2010.
20. Invited talk, Syracuse University, 2010.
21. Invited talk, Cornell University, 2009.
22. Invited talk, the 8th international conference on Sampling Theory and Applications (SAMPTA), 2009.
23. EE systems seminar, California Institute of Technology, 2009.
24. Invited talk, University of Utah, 2008.

## **PROFESSIONAL SERVICES**

### **Conference Organizer for:**

1. Organizing Committee for International Symposium on Information Theory, Los Angeles, 2020.
2. Organizer for Mini-Symposium Super-resolution in imaging and inverse problems at the 9th Applied Inverse Problems Conference (with Dr. Hai Zhang at HKUST, and Dr. Habib Ammari at ETHZ ), 2017.

### **Technical Program Committee Member for:**

IEEE International Symposium on Information Theory (ISIT), 2015  
 IEEE International Conference on Communications (ICC), 2015  
 IEEE Global Conference on Signal and Information Processing (GlobalSIP), 2014  
 the 6th International Wireless Internet Conference (WICON 2011)  
 PIMRC 2011  
 IEEE GlobalSIP 2013 Conference  
 ICC 2013  
 WCSP 2014  
 ICC 2014

### **Reviewer for:**

IEEE Transactions on Information Theory, IEEE Transactions on Signal Processing, IEEE Transactions on Wireless Communications, IEEE Journal of Selected Topics in Signal Processing, IEEE Transactions on Communications, IEEE/ACM Transactions on Networking, Journal of Machine Learning, IEEE Signal Processing Magazine, IEEE Transactions on Mobile Computing, ACM Transactions on Sensor Networks, SIAM Journal on Matrix Analysis and Applications, Applied and Computational Harmonic Analysis, Mathematical Programming, Information and Inference, Automatica, Journal of Communications and Networks, IEEE

Transactions on Cybernetics, International Journal of Electronics and Communications, Information Processing Letters, IEEE Communications Letters, IEEE Signal Processing Letters, ISIT, ICC, GLOBECOM, ITW, INFOCOM, IFAC World Congress, annual Conference on Neural Information Processing Systems (NIPS).

**Judge/Panel Committee Member for:**

NSF proposal reviewer, 2018

NSF panel reviewer for Big Data, 2014

Best Student Paper Judge Committee, Asilomar Conference, 2013.

Grant reviewer for European Research Council (ERC), 2012

Judge for Research Open Day, University of Iowa, 2012.

**Session Chair for:**

Asilomar 2013

CISS 2013

IEEE ISIT 2010

**MEMBERSHIPS**

Member, the Institute of Electrical and Electronics Engineers (IEEE)