

MARYAM FAZEL

Curriculum Vitae

Electrical Engineering
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EDUCATIONAL HISTORY

Stanford University, Stanford, CA
Ph.D., Electrical Engineering
Dissertation title: “Matrix Rank Minimization and Applications”, Advisor: Prof. Stephen Boyd
June 2002

Stanford University, Stanford, CA
M.S., Electrical Engineering
Advisor: Prof. Thomas Kailath
June 1997

Sharif University of Technology, Tehran, Iran
B.S., Electrical Engineering
Feb. 1995

EMPLOYMENT HISTORY

University of Washington
Seattle, WA, USA
Associate Professor of Electrical Engineering, 9/2014 – present
Assistant Professor of Electrical Engineering, 12/2007 – 9/2014

California Institute of Technology
Pasadena, CA, USA
Research Scientist, 3/2006 - 11/2007
Postdoctoral Scholar, 4/2002 – 2/2006

AFFILIATIONS AND OTHER APPOINTMENTS

Adjunct Associate Professor, Dept. of Mathematics, University of Washington, 9/2014 – present
Adjunct Assistant Professor, 7/2010 – 9/2014

Adjunct Associate Professor, Dept. of Computer Science and Engineering, University of Washington, 9/2014 – present
Adjunct Assistant Professor, 7/2010 – 9/2014

Adjunct Associate Professor, Dept. of Statistics, University of Washington, 9/2014 – present
Adjunct Assistant Professor, 5/2013 – 9/2014

AWARDS, HONORS, AND KEYNOTES

1. NSF Tripods Award (2017-2020). Algorithms for Data Science: Complexity, Scalability, and Robustness. With Dmitriy Drusvyatskiy, Zaid Harchaoui, Sham Kakade, YinTat Lee. [NSF announcement](#) and [press](#).
2. Keynote Speaker, Intl. Symposium on Mathematical Programming (ISMP), July 2018, Bordeaux, France.
3. Plenary Speaker, SIAM Applied Linear Algebra Conference, October 26-30 2015, Atlanta, GA.
4. Plenary Speaker, SPARS Conference 2015 (Signal Processing with Adaptive Sparse Representations), July 2015, Cambridge, UK.
5. Best Student Paper Award, Uncertainty in Artificial Intelligence (UAI) 2014 (with K. Dvijotham and E. Todorov).
6. Plenary Speaker, 2013 International Linear Algebra Society Conference, June 3-7 2013, Providence, RI.
7. Coauthored paper selected by ScienceWatch as the “Fast Breaking Paper” in the area of Mathematics, August 2011.
8. NSF CAREER Award, National Science Foundation, 2009.
9. Outstanding Teaching Award, 2009, University of Washington Electrical Engineering Dept. (Annual department-level teaching award, nominated by students)
10. EE Dept. Award for ranking **first** among all freshmen, 1990, Electrical Engineering Dept., Sharif University of Technology, Tehran, Iran
11. Ranked **first** in the country among 300,000 participants in the Nationwide Entrance Examination to all Iranian Universities, 1990, Iran.
Presidential Letter of Honor awarded by the Iranian President, 1990, Iran.
(The total number of participants in this national exam in 1990 was about 1 million in the first round and 300,000 in the final round.)

PUBLICATIONS

All papers, preprints, and theses are available at: <http://faculty.washington.edu/mfazel/>

Refereed archival journal publications

Accepted/Published:

1. D. Drusvyatskiy, **M. Fazel**, S. Roy. An optimal first order method using optimal quadratic averaging. arXiv:1604.06543. SIAM J. on Optimization. To appear.

2. R. Eghbali*, **M. Fazel**, Decomposable Norm Minimization with Proximal-Gradient Homotopy Algorithm, *Computational Optimization and Applications*, 66 (2), 345-381, March 2017.
3. S. Oymak**, A. Jalali*, **M. Fazel**, Y. Eldar, B. Hassibi, Simultaneously Structured Models with Application to Sparse and Low-rank Matrices. *IEEE Trans. on Information Theory*, 61(5): 2886-2908, May 2015.
4. B. Hutchinson*, M. Ostendorf, **M. Fazel**, A Sparse Plus Low-Rank Exponential Language Model for Limited Resource Scenarios, *IEEE Transactions on Audio, Speech, and Language Processing*, 23 (3), 494-504, March/April 2015.
5. K Dvijotham*, E. Todorov, **M. Fazel**, Convex Structured Controller Design. *IEEE Trans. on Control of Networked Systems*, 2(1): 1–10, Mar. 2015.
6. K.-M.Tan, P. London, K.Mohan, S.-I. Lee, **M.Fazel**, D.Witten, Learning Graphical Models with Hubs. *Journal of Machine Learning Research (JMLR)*, 15(Oct): 3297-3331, 2014.
7. K. Mohan*¹, P. London*, **M. Fazel**, D. Witten, S.-I. Lee. Node-Based Learning of Multiple Gaussian Graphical Models, *Journal of Machine Learning Research (JMLR)*, 15(Feb): 445–488, 2014.
8. **M. Fazel**, T. K. Pong*, D. Sun, P. Tseng. Hankel Matrix Rank Minimization with Applications to System Identification and Realization. *SIAM Journal on Matrix Analysis and Applications*, 34(3): 946-977, 2013. (citations: 174)
9. R. Arora, M. Gupta, A. Kapila, **M. Fazel**. Similarity-based Clustering by Left-Stochastic Decomposition. *Journal of Machine Learning Research (JMLR)*, 14: 1715–1746, 2013.
10. F. Fazel, **M. Fazel**, M. Stojanovic. Random Access Compressed Sensing over Fading and Noisy Communication Channels. *IEEE Trans. on Wireless Communications*, 12(5): 2114-2125, May 2013.
11. K. Mohan*, **M. Fazel**. Iterative Reweighted Algorithms for Matrix Rank Minimization. *Journal on Machine Learning Research (JMLR)*, 13: 3441-3473, Nov 2012.
12. F. Fazel, **M. Fazel**, M. Stojanovic. Compressed Sensing in Random Access Networks with Applications to Underwater Monitoring. Elsevier *Journal on Physical Communications* (special issue on Compressive sensing in communications),5(2): 148-160, June 2012.
13. B. Hutchinson*, M. Ostendorf, **M. Fazel**. Low Rank Language Models for Small Training Sets. *IEEE Signal Processing Letters*. 18(9): 489-492, Sep 2011.
14. F. Fazel, **M. Fazel**, M. Stojanovic. Random Access Compressed Sensing in Energy-Efficient Underwater Sensor Networks. *IEEE Journal on Selected Areas in Communications (JSAC)*, 29(9): 1660-1670, Sep 2011.
15. B. Recht, **M. Fazel**, P. Parrilo. Guaranteed Minimum-Rank Solutions of Linear Matrix Equations via Nuclear Norm Minimization. *SIAM Review*, 52(3): 471-501, 2010. (citations: 2066)²
Selected by ScienceWatch as the “Fast Breaking Paper” in the area of Mathematics, August 2011.³

¹ In the lists of authors, * denotes students in my research group; ** denotes a graduate student or postdoc that I closely supervised but was not part of my group.

² All citation counts are from **Google Scholar**, as of 12/1/17.

³ *ScienceWatch.com* tracked Fast Breaking Papers which had the highest percentage increase in citations in *Essential Science Indicators*SM from **Thomson Reuters** from the first bimonthly period of 2011 to the second bimonthly period of 2011: <http://archive.sciencewatch.com/dr/fbp/2011/11augfbp/>
More information about selection criteria: <http://archive.sciencewatch.com/dr/fbp/>

16. N. Yamamoto, **M. Fazel**. A Semidefinite Programming Approach to Maximum-purity Quantum Encoding Channel Design. *Physical Review A*, 76(1): 012327, July 2007.
17. M. Lobo, **M. Fazel**, S. Boyd. Portfolio Optimization with Linear and Fixed Transaction Costs and Bounds on Risk. *Annals of Operations Research*, 152(1):376-394, July 2007. (citations: 289)
18. A. Fakheri, **M. Fazel**. A Methodology for Optimization of Shell and Tube Heat Exchangers in Series. *International Journal of Heat Exchangers*, 7(1), June 2006.
19. M. Sharif, C. Florens, **M. Fazel**, B. Hassibi. Amplitude and Sign Adjustment for Peak to Average Power Reduction. *IEEE Trans. on Communications*, 53(8):1243-1247, August 2005.

Manuscripts:

1. A. Jalali, **M. Fazel**, L. Xiao. Variational Gram Functions: Convex Analysis and Optimization. arXiv:1507.04734. Under revision for SIAM J. on Optimization.

Conference proceedings and other non-journal articles

- **Fully refereed publications**

Published:

1. A. Jalali, J. Saunderson, **M. Fazel**, B. Hassibi, Error bounds for Bregman Denoising and Structured Natural Parameter Estimation. *Proc. International Symposium of Information Theory (ISIT)*, July 2017.
2. A. Jalali, Q. Han, I. Dumitriu, **M. Fazel**, Relative Density and Exact Recovery in Heterogeneous Stochastic Block Models. *Proc. Neural Information Processing Systems (NIPS)*, Barcelona, Spain, Dec 2016.
3. R. Eghbali, **M. Fazel**, Designing smoothing functions for improved worst-case competitive ratio in online optimization. *Proc. Neural Information Processing Systems (NIPS)*, Barcelona, Spain, Dec 2016.
4. R. Eghbali*, **M. Fazel**, M. Mesbahi, Worst Case Competitive Analysis of Greedy Algorithm for Online Conic Optimization. To appear in *Proc. Conference on Decision and Control*, Las Vegas, NV, Dec 2016.
5. D. Meng*, R. Eghbali*, **M. Fazel**, M. Mesbahi, Online Algorithms for Network Formation. To appear in *Proc. Conference on Decision and Control*, Las Vegas, NV, Dec 2016.
6. J. Saunderson*, **M. Fazel**, B. Hassibi, Simple algorithms and guarantees for low rank matrix completion over F_2 . *Proc. International Symposium of Information Theory*, July 2016.
7. K. Jaganathan, J. Saunderson*, **M. Fazel**, Y. Eldar, B. Hassibi, "Phaseless Super-resolution using masks", *Proc. IEEE Intl. Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, March 2016.
8. D. Meng*, M. Mesbahi, **M. Fazel**, Proximal Alternating Direction Method of Multipliers for Distributed Optimization on Weighted Graphs, *Proc. Conference on Decision and Control (CDC)*, Dec 2015.
9. M. Grechkin, **M. Fazel**, D. Witten, S.-I. Lee, Pathway Graphical Lasso, *Proc. AAAI Conference on Artificial Intelligence*, Jan 2015.
10. K. Dvijotham*, **M. Fazel**, E. Todorov, Universal Convexification via Risk-Aversion. *Proc. Uncertainty in Artificial Intelligence (UAI)*, July 2014. Winner of the **Best Student Paper Award**.

11. K. Dvijotham*, E. Todorov, **M. Fazel**, Convex Risk Averse Control Design. *Proc. Conference on Decision and Control (CDC)*, Dec 2014.
12. S. Oymak**, A. Jalali*, **M. Fazel**, B. Hassibi, Denoising and Recovery of Simultaneously Structured Models. *Proc. Conference on Decision and Control (CDC)*, Dec 2013.
13. K. Dvijotham*, E. Theodorou, E. Todorov, **M. Fazel**, Convexity of Optimal Linear Controller Design. *Proc. Conference on Decision and Control (CDC)*, Dec 2013.
14. K. Dvijotham*, E. Todorov, M. Fazel, Convex Control Design via Covariance Minimization. *Proc. of Allerton Conference*, Oct 2013.
15. B. Hutchinson*, M. Ostendorf, **M. Fazel**, Exceptions in Language as Learned by the Multi-factor Sparse Plus Low-rank Language Model. *Proc. Intl. Conf. on Acoustics, Speech, and Signal Processing (ICASSP)*, May 2013.
16. K. Mohan*, M. Chung, S. Han, D. Witten, S.-I. Lee, **M. Fazel**, Structured Sparse Learning of Multiple Gaussian Graphical Models. *Proc. Neural Information Processing Systems (NIPS)*, Dec 2012.
17. B. Hutchinson*, M. Ostendorf, **M. Fazel**, A Sparse Plus Low Rank Maximum Entropy Language Model. *Proc. Interspeech Conference*, Sep 2012. (Oral presentation)
18. M. Nabi-Abdolyousefi**, **M. Fazel**, Mehran Mesbahi, Graph Identification via Transfer Matrices, Similarity Transformations, and Matrix Approximations, *Proc. Conference on Decision and Control (CDC)*, 2012.
19. F. Fazel, **M. Fazel**, M. Stojanovic, Random Access Compressed Sensing over Fading and Noisy Communication Channels, *Proc. International Symposium on Information Theory (ISIT)*, July 2012.
20. S. R. Ke, J. N. Hwang, **M. Fazel**, S. Z. Wang, H. I. Pai, Constrained Multiple Kernel Tracking for Human Limbs, *Proc. IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2012.
21. F. Fazel, **M. Fazel**, M. Stojanovic, Random Access Compressed Sensing: An Integrated Architecture for Energy-efficient Networking. *Proc. IEEE Asilomar Conf. on Signals, Systems, and Computers*, Nov 2011.
22. R. Arora, A. Kapila, M. Gupta, **M. Fazel**, Clustering by Left-Stochastic Decomposition. *Proc. International Conference on Machine Learning (ICML)*, July 2011.
23. S. Oymak**, K. Mohan*, **M. Fazel**, B. Hassibi, A Simplified Approach to Recovery Conditions for Low Rank Matrices. *Proc. International Symposium on Information Theory (ISIT)*, June 2011.
24. K. Mohan*, **M. Fazel**, Iterative Reweighted Least Squares for Matrix Rank Minimization, *Proc. Allerton Conference*, Sep 2010.
25. F. Fazel, **M. Fazel**, M. Stojanovic, Random Access Compressed Sensing in Underwater Acoustic Networks, *Proc. of Allerton Conference*, Sep 2010.
26. K. Mohan*, **M. Fazel**, New Restricted Isometry Results for Noisy Low-rank Recovery. *Proc. of International Symposium on Information Theory (ISIT)*, June 2010.
27. K. Mohan*, **M. Fazel**, Reweighted Nuclear Norm Minimization with Application to System Identification. *Proc. American Control Conference (ACC)*, July 2010.
28. G. Georgiev, **M. Fazel**, E. Klavins, Model Discrimination of Chemical Reaction Networks by Linearization. *Proc. American Control Conference (ACC)*, July 2010.
29. K. Dvijotham**, **M. Fazel**, A Nullspace Analysis of the Nuclear Norm Heuristic for Rank Minimization. *Proc. Intl Conf on Acoustics, Speech, and Signal Processing (ICASSP) 2010*, Dallas, Texas, March 2010.
30. B. Recht, **M. Fazel**, P. Parrilo, Guaranteed Minimum-Rank Solutions of Linear Matrix Equations via Nuclear Norm Minimization. *Proc. Allerton Conference*, Allerton, IL, Sep 2007.

31. D. Gayme**, **M. Fazel**, J. Doyle, Complexity in Automation of SOS Proofs: An Illustrative Example. *Proc. Conference on Decision and Control*, Dec 2006.
32. **M. Fazel**, D. Gayme**, M. Chiang, Transient Analysis for Wireless Power Control. *Proc. Globecom Conference*, Nov 2006.
33. H. El-Samad, **M. Fazel**, X. Liu, A. Papachristodoulou, S. Prajna, Stochastic Reachability Analysis in Complex Biological Networks. *Proc. American Control Conference*, June 2006.
34. **M. Fazel**, M. Chiang, Network Utility Maximization with Nonconcave Utilities Using Sum-of-Squares Method. *Proc. Conference on Decision and Control*, Dec 2005.
35. T.-M. Yi, **M. Fazel**, X. Liu, T. Otitoju, J. Goncalves, A. Papachristodoulou, S. Prajna, and J. Doyle, Application of Robust Model Validation Using SOSTOOLS to the Study of G-protein Signaling in Yeast. *Proc. Foundations of Systems Biology and Engineering*, Aug 2005.
36. A. Fakhri, **M. Fazel**, Optimization of Shell and Tube Heat Exchanger Networks, to appear in *Proc. 2004 ASME International Mechanical Engineering Congress*, Nov 2004.
37. M. Sharif, C. Florens, **M. Fazel**, B. Hassibi, Peak to Average Power Reduction Using Amplitude and Sign Adjustment. *Proc. International Conference on Communications*, June 2004.
38. **M. Fazel**, H. Hindi, S. Boyd, Rank Minimization and Applications in System Theory. *Proc. American Control Conference*, June 2004. (citations: **181**)
39. **M. Fazel**, H. Hindi, S. Boyd, Log-det Heuristic for Matrix Rank Minimization with Applications to Hankel and Euclidean Distance Matrices. *Proc. American Control Conference*, June 2003. (citations: **412**)
40. **M. Fazel**, H. Hindi, S. Boyd, A Rank Minimization Heuristic with Application to Minimum Order System Approximation. *Proc. American Control Conference*, June 2001. (citations : **742**)

- **Refereed by abstract only**

1. A. Jalali*, **M. Fazel**, A Convex Method for Learning d-valued Models. IEEE Global Conference on Signal and Information Processing (GlobalSIP), Dec 2013.
2. **M. Fazel**, H. Hindi, S. Boyd, Heuristics for Matrix Rank Minimization. 1st McMaster Optimization Conference, Aug 2001.

Theses

1. **M. Fazel**, "Matrix Rank Minimization with Applications", PhD Dissertation, Stanford University, June 2012. (citations: **990**)

Abstracts, letters, non-refereed papers, technical reports

1. F. Fazel, **M. Fazel**, M. Stojanovic, Random Access Sensor Networks: Reconstruction from Incomplete Data, *Proc. Information Theory and Applications Workshop (ITA)*, Feb 2012. **Invited paper.**
2. F. Fazel, **M. Fazel**, M. Stojanovic, Design of a Random Access Network for Compressed Sensing. *Proc. Information Theory and Applications Workshop (ITA)*, Feb 2011. **Invited paper.**
3. **M. Fazel**, E. J. Candes, B. Recht, P. Parrilo, Compressed sensing and robust recovery of low rank matrices, *Proc. Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Oct 2008. **Invited paper.**

OTHER SCHOLARLY ACTIVITY

Selected invited lectures and seminars

1. Colloquium talk at Center for Control, Dynamical Systems, and Computation, UC Santa Barbara, "*Online Optimization, Smoothing, and Competitive Ratio*," Sep 2017.
2. Simons Institute Workshop on Discrete Optimization via Continuous Relaxation, "*Online Optimization, Smoothing, and Competitive Ratio*," Sep 2017.
3. ECM Conference, Hong Kong, "*Online Optimization, Smoothing, and Worst-case Competitive Ratio*," June 2017.
4. SIAM Conference on Optimization, Vancouver, BC, Canada. Invited session on XXX "*Designing Smoothing Functions for Improved Worst-case Competitive ration in Online Optimization*," May 2017.
5. Optimization and Statistical Learning Workshop, Les Houches, France. "*Online Optimization, Smoothing, and Competitive Ratio*," April 2017.
6. ORFE Department Colloquium, Princeton University, Princeton, NJ. "*Online Optimization, Smoothing, and Worst-case Competitive Ratio*," April 2017.
7. **Plenary talk**, LIDS Student Conference, MIT, Boston, MA. "*Online Optimization, Smoothing, and Worst-case Competitive Ratio*," Feb 2017.
8. SAMSI Workshop, "Variational Gram Functions," Aug 2016
9. ICCOPT Invited Session, "*An Optimal First-order Method Based on Optimal Quadratic Averaging*," Aug 2016
10. IMA Workshop, "*Variational Gram Functions: Convex Analysis and Optimization*," May 2016
11. **Plenary talk**, SIAM Conference Applied Linear Algebra (LA15), Atlanta, GA. "*Variational Gram Functions: Convex Analysis and Optimization*," Oct 2015.
12. 15th Anniversary Conference for IPAM (Institute for Pure and Applied Mathematics), Los Angeles, CA. "*Recovery of structured signals with limited information*," Oct 2015.
13. Intl. Symposium on Mathematical Programming (ISMP), Pittsburgh, PA. "*Variational Gram Functions: Convex Analysis and Optimization*," July 2015.
14. July 2015.
15. **Plenary talk**, SPARS Conference, Cambridge, UK. "*Recovery and denoising with simultaneous structures*," July 2015.
16. Hausdorff Center Workshop on Low-rank Optimization and Applications, Bonn, Germany. "*Recovery of simultaneous structures*," June 2015.
17. SILO Workshop, Simons Institute, UC Berkeley, CA. Invited panelist; panel topic "*Hierarchies in Optimization: Theory and Practice*," May 2015.
18. Fields Institute Workshop on Optimization and Matrix Methods in Big Data, Toronto, CA. "*Convex regularization with the Diversity norm: properties and algorithms*," Feb 2015.
19. ICERM Workshop on Approximation, Integration, and Optimization, Providence, RI. "*Convex relaxations for recovering simultaneously structured objects*," Oct 2014.
20. Simons Institute Workshop on Semidefinite Optimization, Approximation and Applications, UC Berkeley, CA. "*Convex relaxations for recovering simultaneously structured objects*," Sep 2014.
21. SIAM Annual Meeting, Chicago, IL. "*Denoising for simultaneously structured signals*," invited talk in mini-symposium on Mathematics of Information and Low Dimensional Models, July 2014.

22. SIAM Conference on Optimization, San Diego, CA. “*Denoising for simultaneously structured signals*,” invited talk in session on Optimization for Statistical Inference. May 2014.
23. **Plenary talk**, Women in Mathematics Workshop, Institute for Advanced Study, Princeton, NJ. “*Filling in the gaps: Recovery from incomplete information*,” May 2014.
24. UC Berkeley Controls Seminar, EE Department, Berkeley, CA. “*Geodesic distance maximization via convex optimization*,” April 2014.
25. MathAcrossCampus Seminar, University of Washington, Seattle, WA. “*Filling in the gaps: Recovery from incomplete information*,” February 2014.
26. Simons Institute Workshop on Theoretical Foundations of Big Data Analysis, UC Berkeley, CA. “*Noisy Estimation of Simultaneously Structured Models*,” September 2013.
27. Numerical Linear Algebra and Optimization Workshop, Pacific Inst. for Mathematical Sciences (PIMS), University of British Columbia, Vancouver, Canada. “*Can Structure-Promoting Penalties be Combined?*” August 2013.
28. Duke Workshop on Sensing and Analysis of High-dimensional Data, Duke University, Durham, NC. “*Recovery and Denoising of Simultaneously Structured Signals*,” July 2013.
29. **Plenary talk**, International Linear Algebra Society (ILAS) Meeting, Providence, RI. “*Recovery of Structured Models with Limited Information*,” June 2013.
30. Systems, Information, Learning, Optimization (SILO) Workshop, University of Wisconsin, Madison, WI. “*How to Use Multiple Priors on a Model?*” June 2013.
31. Institute for Pure and Applied Mathematics (IPAM) Reunion Workshop on Optimization, Lake Arrowhead, CA. “*Geodesic Distance Maximization via Convex Optimization*,” June 2013.
32. Laboratory of Information and Decision Systems (LIDS), MIT, Boston, MA. “*Recovery and Denoising for Simultaneously Structured Models*,” May 2013.
33. University of Washington, Statistics Department Colloquium, Seattle, WA. “*Recovery of Simultaneously Structured Models with Limited Information*,” April 2013.
34. University of Wisconsin-Madison, Madison, WI. “*Recovery and Denoising for Simultaneously Structured Models*,” April 2013.
35. UC Berkeley, Electrical Engineering and Computer Science Dept., DSP/Comm/Net Seminar, Berkeley, CA. “*Recovery of Simultaneously Structured Models*,” April 2013.
36. Information Systems Lab (ISL) Colloquium, Electrical Engineering, Stanford University, Stanford, CA. “*Recovery of Simultaneously Structured Models*,” April 2013.
37. University of British Columbia, Computer Science Dept., SCIAM Seminar, Vancouver, Canada. “*Recovery and Denoising for Simultaneously Structured Models*,” March 2013.
38. University of Washington, Computer Science and Engineering, CS Theory Seminar, Seattle, WA. “*Compressed sensing and recovery of simultaneously structured models*,” Feb 2013.
39. Information Theory and Applications (ITA) Workshop, San Diego, CA. “*Simultaneously Structured Modes with Application to Sparse and Low-rank Matrices*,” Feb 2013.
40. IPAM Workshop on Structure and Randomness in System Identification and Learning, Los Angeles, CA. “*Simultaneously Structured Modes with Application to Sparse and Low-rank Matrices*,” Jan 2013.
41. Microsoft Research/UW Workshop on Machine Learning, Microsoft Research, Redmond, WA, “*Recovery of Simultaneously Structured Models using Convex Optimization*,” Oct 2012
42. Statistical and Applied Mathematical Sciences Inst. (SAMSI) Workshop on Massive Datasets, Research Triangle Park, NC. “*Recovery of Models with Simultaneous Structure*”, Sep 2012.

43. International Symposium on Mathematical Programming (ISMP), Berlin, Germany. *"Recovery of Models with Simultaneous Structure"*, Aug 2012.
44. Workshop on Probabilistic techniques and algorithms, UT Austin, Austin, TX. *"Improved connection between recovery conditions for vectors and matrices"*, April 2012.
45. Fields Institute Workshop on Symbolic-Numeric Computations, Toronto, CA. *"Strong Recovery Conditions for Low-rank Matrices,"* Nov 2011.
46. Northeastern University Distinguished Speaker Series, Boston, MA. *"Beyond Sparse Signals: From Compressed Sensing to Low-rank Matrix Recovery,"* March 2011.
47. Banff Workshop on Sparse and Low-rank Approximations, Banff, Canada. *"Strong Recovery Conditions for Low-rank Matrices,"* March 2011.
48. UCLA Controls Seminar, Los Angeles, CA. *"Recovering Low-rank Matrices using the Nuclear Norm: An Overview and Some New Results,"* Dec 2010.
49. Inst. For Pure and Applied Mathematics (IPAM) Workshop on Continuous Optimization, Los Angeles, CA. *"Algorithms for Rank Minimization of Structured Matrices"*, Oct 2010.
50. SIAM Annual Meeting, Philadelphia, PA. Invited session, *"On Reweighted Heuristics for Matrix Rank Minimization,"* July 2010
51. Workshop on High-performance Computing, Tilburg, Netherlands. *"Nuclear Norm Heuristic for Matrix Rank Minimization: a Nullspace Approach,"* June 2010.
52. Workshop on Sparsity and Computation, Hausdorff Center, Bonn, Germany. *"Nuclear Norm Minimization: Reweighted Variations and a Nullspace Analysis,"* June 2010.
53. Workshop on Frontiers of Controls, Games, and Network Science, University of Texas, Austin, TX. *"Exploiting parsimony: finding sparse vectors and low-rank matrices,"* Feb 2010.
54. MIT LIDS (Lab. For Information and Decision Systems) Student Conference 2010. Invited **Plenary Talk**, *"Recovering Low-rank Matrices using the Nuclear Norm,"* Jan 2010.
55. INFORMS Conference, San Diego, CA. *"Nullspace Analysis of the Nuclear Norm Heuristic for Rank Minimization,"* Oct 2009.
56. SIAM Linear Algebra Conference, Monterey, CA. *"Nullspace Analysis of the Nuclear Norm Heuristic for Rank Minimization,"* Oct 2009.
57. American Institute of Mathematics (AIM), Workshop on Convex Algebraic Geometry. *"Finding Low Rank Matrices by Convex Optimization,"* Sep 2009.
58. Stanford Management Science & Engineering Dept., Linear Algebra and Optimization Seminar. *"Finding Low Rank Matrices by Convex Optimization,"* Sep 2009.
59. ISMP (Intl. Symp. on Mathematical Programming), Chicago, IL. *"A Null-space Analysis of the Nuclear Norm Heuristic for Rank Minimization,"* Aug 2009.
60. Microsoft Research, Redmond, WA. *"From Compressed Sensing to Matrix Rank Minimization,"* July 2009.
61. OptimA Conference, Urbana-Champaign, IL. *"Robust Low-rank Matrix Recovery,"* Mar 2009.
62. University of Illinois, Urbana-Champaign, Coordinated Sciences Lab Seminar. *"Beyond Sparse Signals: From Compressed Sensing to Matrix Rank Minimization,"* Nov 2008.
63. Asilomar Conference, Monterey, CA. Invited talk, *"Robust Low-rank Matrix Recovery,"* Oct 2008.
64. INFORMS Conference, Washington DC. *"Finding Low-rank Matrices by Convex Optimization,"* Oct 2008.
65. West Coast Optimization Meeting (WCOM), Seattle, WA. *"Matrix Rank Minimization and Semidefinite Programming,"* May 2008.
66. University of Washington, Applied Math Dept Colloquium. *"Matrix Rank Minimization with Engineering Applications,"* Jan 2008.

67. UC San Diego, Cal-IT2 Colloquium. “*Finding Low-rank Matrices via Convex Optimization*,” Nov 2007.
68. Penn State University, Electrical Engineering Seminar. “*Rank Minimization and Polynomial Nonnegativity: Applications in Engineering and Biology*,” Apr 2007.
69. University of New Mexico, Electrical Engineering. “*Rank Minimization and Polynomial Nonnegativity: Applications in Engineering and Biology*,” Mar 2007.
70. University of Washington, Electrical Engineering. “*Rank Minimization and Polynomial Nonnegativity: Applications in Engineering and Biology*,” Mar 2007.
71. UCLA, Systems and Dynamics Seminar. “*Sum of Squares Optimization and Network Resource Allocation*,” Nov 2006.
72. Caltech, Connections II Workshop. “*Complexity Implies Fragility*,” Aug 2006.
73. American Control Conference, Minneapolis, MN, Tutorial Session on Applications of Convex Optimization. “*Applications of Optimization and Duality in Networking*,” June 2006.

Professional society memberships

IEEE (Institute for Electrical and Electronic Engineers), Member
SIAM (Society for Industrial and Applied Mathematics), Member
INFORMS (Institute for Operations Research and the Management Sciences), Member

Other

Reviewer for Journals:

IEEE Trans. Automatic Control, Automatica, IEEE Trans. on Information Theory, IEEE Trans. on Signal Processing, Foundations of Computational Mathematics Journal, Mathematical Programming, SIAM Review, IEEE Proceedings, SIAM J. on Optimization, J. of Approximation Theory, SIAM J. on Control and Optimization, Signal Processing Letters, Linear Algebra and its Applications.

Reviewer for Conferences:

American Control Conference (ACC), Conference on Decision and Control (CDC), Intl. Federation of Automatic Control (IFAC) Conference, Neural Info. Processing Systems (NIPS), Symposium on Discrete Algorithms (SODA), Signal Processing with Adaptive Structured Sparse Representations (SPARS).

GRADUATE STUDENTS

Chaired Doctoral Degrees

- Reza Eghbali, Chair. Thesis title: “Online algorithm design via smoothing with application to online experiment selection.” Graduated in summer 2017 (defense: 8/7/2017). Currently Postdoctoral Scholar at the Simons Institute, Berkeley.
- De Meng, Chair. Thesis title: “Graph design via convex optimization: online and distributed perspectives.” Graduated in winter 2017 (defense: 2/27/2017).

- Amin Jalalai, Chair. Thesis title: “Convex optimization algorithms and statistical bounds for learning structured models.” PhD in EE, Graduated in summer 2016 (defense: 8/9/2016). Currently Postdoctoral Scholar, EE dept., Univ. of Wisconsin, Madison.
- Karthik Mohan, Chair. Thesis title: “Learning structured matrices in high dimensions: Low-rank estimation and structured graphical models.” PhD in EE, graduated in fall 2014 (defense: 11/17/2014). Currently Data Scientist at Amazon, Inc., Seattle, WA.
- Krishnamurthy Dvijotham, Co-chair (with Emanuel Todorov). Thesis title: “Automating Stochastic Optimal Control.” PhD in Computer Science and Engineering, graduated in spring 2014 (defense: 3/7/2014). Currently at DeepMind/Google, UK.
- Brian Hutchinson, Co-chair (with Mari Ostendorf). Thesis title: “Rank and Sparsity in Language Processing.” PhD in EE, graduated in summer 2013 (defense: 7/31/2013). Currently Assistant Professor in Computer Science at Western Washington University, WA.
- Ting Kei Pong, Co-chair (with Rekha Thomas). Thesis title: “Convex Optimization in Sensor Network Localization and Multitask Learning.” PhD in Mathematics, graduated in spring 2011 (defense: 5/10/2011). Currently Assistant Professor, Dept. of Applied Mathematics, Hong Kong Polytechnic University.

Current Doctoral Students

- Tyler Johnson, Co-chair, with Prof. Carlos Guestrin. Passed EE Generals Exam in winter 2017.
- Yue Sun, Chair. Pre-quals PhD student.
- Omid Sadeghi-Meibodi, Chair. Pre-quals PhD student.
- Jingjing Bu, Co-chair, with Prof. Mehran Mesbahi. Pre-quals PhD student.

Other significant student supervision

- Palma London, Undergraduate Researcher, Fall 2011-- present. Double major in Electrical Engineering and Mathematics.
Independent study: Fall 2011, Winter 2012, Spring 2012.
Funded research (NSF REU): Summer 2012, Fall 2012.
Funded research (Mary Gates Scholarship): Winter 2013, Spring 2013.
Palma has coauthored two journal papers with my group, both published in J. of Machine Learning Research.
- Mikala Johnson, Applied Mathematics graduate student, Spring 2010. Independent study on randomized matrix algorithms, with project report and presentation in the UW Applied Math Numerical Analysis seminar.

Awards received by students

- Palma London, *Undergraduate Research Award*, Electrical Engineering Dept., University of Washington, May 2013.
- Brian Hutchinson, *Yang Award*, Electrical Engineering Dept., University of Washington, May 2013.
- Palma London, *Mary Gates Scholarship*, University of Washington.

- De Meng, *Huckabay Teaching Fellowship*, University of Washington, 2012.
- De Meng, *Outstanding Teaching Assistant Award*, Electrical Engineering Dept., University of Washington, June 2012.
- Amin Jalali, *Paul C. Leach Fellowship*, Electrical Engineering Dept., University of Washington, Fall 2011.
- Amin Jalali, *Top Scholar Award*, Electrical Engineering Dept., University of Washington, Fall 2010.

RESEARCH FUNDING

Funding Agency	Title	Total Amount (Subcontracts)	Dates (start-finish)
National Science Foundation (NSF)	CAREER: Parsimonious Modeling via Matrix Rank Minimization PI: Fazel	\$400,000	9/2009-9/2014
Office of Naval Research (ONR)	Distributed Online Optimization in Dynamic Networks Lead PI: Fazel Co-PI: Mesbahi (UW Aeronautics)	\$968,000 (PI's portion: \$500,000)	9/2012-9/2017
Univ of Washington, RRF	Structured Graphical Lasso: Models, Optimization, and Applications Lead PI: Witten (UW Biostatistics) Co-PIs: Fazel, Lee (UW CSE)	\$35,338 (PI's portion: \$11,780)	3/2013-12/2013
National Science Foundation (NSF)	REU Supplement for CAREER: Parsimonious Modeling via Matrix Rank Minimization PI: Fazel	\$6000	6/2012 - 9/2014
National Science Foundation (NSF)	CIF: Medium: Collaborative Research: Estimating simultaneously structured models: From phase retrieval to network coding PI: Fazel Co-PI: Hassibi (Caltech)	\$1,000,000 (PI's portion: \$500,000)	9/2014 – 9/2018
Office of Naval Research (ONR) & Dept. of	MURI: ADAPT: Analytical Framework for Actionable Defense Against Advanced Persistent Threats Lead PI: R. Poovendran Co-PI: Fazel Other PI institutions: Berkeley, UIUC,	\$7,500,000 (PI's portion: \$600,000)	6/2016-6/2021

Defense (DoD)	Georgia Tech, UCSB.		
National Science Foundation (NSF)	NSF Early-Career Workshop on Cyberphysical Systems in Smart Cities	\$100,000	5/2015-5/2016
Pacific Institute for Mathematical Sciences (PIMS)	CORE Seminar Series at the Univ. of Washington	\$5000 (CAD)	2015-2016

SERVICE

Teaching Awards, Nominations for Teaching Awards

Outstanding Teaching Award, UW Electrical Engineering Dept., 2009

List of highly-rated courses in the College of Engineering: EE PMP 578, fall 2015.

Selected to attend NETI (National Effective Teaching Institute) Workshop on Engineering Education

List of highly rated courses in the College of Engineering: EE/AA/ME 578, winter 2016

Departmental service

1. EE Dean Lytle Lectureship Committee Chair (2015-present)
2. EE PMP Committee (2014-present)
3. EE Undergraduate Admissions Committee (summer 2014)
4. EE Dean Lytle Lectureship Committee Member (2008-2015). Organizing committee of the Premier Annual Lectureship in the EE Department. Past speakers include: Irwin Jacobs, Vincent Poor, Thomas Kailath, Ingrid Daubechies, Alan Willsky, Stephen Boyd, David Tse.
5. EE Awards Committee (2009-2011)
6. EE Undergraduate Admissions Committee (summer 2009)

Professional society and other service

SIAM-MOS Editorial Board Member, May 2014- present.

Invited Session Organization:

1. Two invited sessions at the International Symposium on Mathematical Programming (ISMP), Aug 2009.
2. Invited session at INFORMS Conference, Oct 2009.
3. Invited session at SIAM Optimization conference, May 2013.
4. Invited session at SIAM Optimization conference, May 2014.

Workshop and Conference Organization:

1. Organizing committee (2014-present) and PI (2016-present), CORE Seminar Series at UW.
2. Area Chair, Neural Information Processing Systems (NIPS) 2016.
3. Steering Committee Member, Signal Processing with Adaptive Structured Sparse Representations (SPARS) Conference 2017.
4. Co-organizer, IMA Workshop on Optimization and Parsimonious Modeling, at the Inst. for Mathematics and Its Applications (IMA), Minneapolis, MN. January 2016.
5. Cluster Chair, International Symposium on Mathematical Programming (ISMP), July 2015.
6. Co-chair, 2015 NSF Early-Career Investigators' Workshop on Cyber-Physical Systems in Smart Cities, Seattle, WA, April 2015.
7. Co-organizer, Annual West Coast Optimization Meeting (WCOM), Workshop on Optimization jointly organized with UW Math Dept. May 2012, May 2013, and Optimization and Machine Learning, Jan 2013. Proposal was one of the 4 funded for winter 2013 workshop series.
8. Technical Program Committee member, Signal Processing with Adaptive Structured Sparse Representations (SPARS) Conference, Lausanne, Switzerland, July 2013.

NSF proposal review panelist, ENG Division, July 2010.

NSF proposal review panelist, DMS Division, March 2014.

NSF proposal review panelist, CISE Division, March 2016.

Other service

1. Applied Physics Lab WRF Award Selection Committee (2009)
2. Society for Women Engineers (SWE) fellowship selection committee (2010)
3. PhD committee member (excluding chair/co-chair position and GSR) for:
Amir Rahmani (AA), Nils Napp (EE), Yihua Chen (EE), Eric Garcia (EE), Linda Bai (EE), Hamed Firooz (EE), Sergey Feldman (EE), Marzieh Nabi (AA), Chris Jordan-Squire (Math), Bin Zhang (EE), Ryan Kappedal (Statistics), Arend Voorman (Biostatistics), Brian Hinson (AA), Rishabh Iyer (EE), Yali Wan (Statistics), Saunya Sinha (Industrial Eng), Tyler Johnson (EE), Jingjing Bu (EE), Nazli Demier (AA), Yali Wan (Statistics).