Adel Javanmard

Assistant Professor, Data Sciences and Operations Department
Marshall School of Business, University of Southern California
Email: ajavanma@usc.edu
Homepage: `http://faculty.marshall.usc.edu/Adel-Javanmard`

ACADEMIC POSITIONS

Assistant Professor (tenure-track), Department of Data Sciences and Operations   Jun 2015-Present
    Marshall School of Business, University of Southern California

Assistant Professor (by courtesy), Department of Computer Science.   Jan 2017-Present
    Viterbi School of Engineering, University of Southern California.

Visiting Scientist, Simons Institute for the Theory of Computing (UC Berkeley)
    Foundations of Data Science Program,   Fall 2018
    Information Theory Program,   Spring 2015

Post-Doctoral Research Fellow, Center for Science of Information   2014-2015
    Worksite: UC Berkeley, Stanford University

Research Intern, Microsoft Research New England, Cambridge, MA   Jun–Sep 2012

Research Intern, Microsoft Research Silicon Valley, Mountain View, CA   Jun–Sep 2011

EDUCATION

Stanford University , Stanford, CA
    Ph.D. in Electrical Engineering, Advisor: *Andrea Montanari*   2010–2014
    Thesis Title: Inference and Estimation in High-Dimensional Data Analysis

Stanford University , Stanford, CA
    M.Sc. in Electrical Engineering   2009-2011

Sharif University of Technology, Tehran, IRAN   2004–2009
    B.Sc. in Electrical Engineering

Sharif University of Technology, Tehran, IRAN   2005–2009
    B.Sc. in Mathematics

RESEARCH INTERESTS

- High-dimensional statistics and Machine learning
- Graphical models and Message passing algorithms
- Theory of algorithms and Non-convex optimization
- Dynamic and personalized decision-making

Distinctions

NSF CAREER Award, Division of Mathematical Sciences (Statistics Program), 2019

USC Marshall Outlier Research in Business (iORB) Fund, 2018.

Dr. Douglas Basil Award for Junior Business Faculty, 2018.

Zumberge Individual Award, USC James H. Zumberge Faculty Research and Innovation Fund, 2017.

Google Faculty Research Award, 2016.
    -1 of 6 recipients worldwide in the field of Algorithms and Optimization

Thomas M. Cover Dissertation Award, IEEE Information Theory Society, 2015.
    -Awarded annually to 1 recipient worldwide for an outstanding doctoral dissertation

CSoI Post-Doctoral Research Fellowship, Center for Science of Information, 2014–2015.

Student Paper Award Finalist, IEEE Intl Symp on Information Theory (ISIT), Cambridge, USA, 2012.

Student Paper Award Finalist, IEEE Intl Symp on Information Theory (ISIT), Russia, 2011.

Stanford Graduate Fellowship, 2010–2013.

Stanford Electrical Engineering Fellowship, 2009–2010.

Silver medal, 45th International Mathematical Olympiad (IMO), Greece, 2004.

Gold medal, National Mathematical Olympiad, Tehran, IRAN, 2003.

Bronze medal, National Mathematical Olympiad, Tehran, IRAN, 2002.

Publications

Citation Number: (Based on Google Scholar)
Citations = 2,118; h-index = 19; i10-index = 28.

Journal Publications

1. Adel Javanmard and Jason D. Lee, "*A Flexible Framework for Hypothesis Testing in High-dimensions,*" Accepted for publication in Journal of Royal Statistical Society (Series B), 2019.

2. Ery Arias-Castro, Adel Javanmard, Bruno Pelletier, "*Perturbation Bounds for Procrustes, Classical Scaling, and Trilateration, with Applications to Manifold Learning,*", Accepted for publication in Journal of Machine Learning Research, 2019.

3. Adel Javanmard, Marco Mondelli and Andrea Montanari, "*Analysis of a Two-Layer Neural Network via Displacement Convexity,*" Accepted for publication in Annals of Statistics, 2019.

4. Negin Golrezaei, Adel Javanmard and Vahab Mirrokni, "*Dynamic Incentive-Aware Learning: Robust Pricing in Contextual Auctions,*" Accepted for publication in Journal of Operations Research, 2019.

5. Adel Javanmard and Hamid Javadi, "*False Discovery Rate Control via Debiased Lasso,*" Electronic Journal of Statistics, Volume 13, No .1, pages 1212-1253, 2019.

6. David S. Robertson, Jan Wildenhain, Adel Javanmard, and Natasha A. Karp, "*onlineFDR: an R package to control the false discovery rate for growing data repositories,*" Bioinformatics, Volume 35, Issue 20, Pages 4196–4199, 2019.

7. Adel Javanmard and Hamid Nazerzadeh, "*Dynamic pricing in high-dimensions,*" The Journal of Machine Learning Research 20, no 1 (2019): 315-363.

8. Mahdi Soltanolkotabi, Adel Javanmard and Jason D. Lee "*Theoretical insights into the optimization landscape of over-parameterized shallow neural networks,*" IEEE Transactions on Information Theory, 65(2), pages 742-769, 2018.

9. Adel Javanmard and Andrea Montanari, "*Debiasing the Lasso: Optimal Sample Size for Gaussian Designs,*" Annals of Statistics, Volume 46, No. 6A, pages 2593-2622, 2018.

10. Adel Javanmard and Andrea Montanari, "*Online Rules for Control of False Discovery Rate and False Discovery Exceedance,*" Annals of Statistics, Vol. 46, No. 2, pages 526-554, 2018.

11. Adel Javanmard "*Perishability of Data: Dynamic pricing under varying-coefficient models,*" Journal of Machine Learning Research, 18(53):1-31, 2017.

12. Anand Bhaskar, Adel Javanmard, Thomas Courtade, David Tse, "*Novel probabilistic models of spatial genetic ancestry with applications to stratification correction in genome-wide association studies ,*" In Bioinformatics Journal, March 2017, 33(6), pp. 879-885, doi: 10.1093/bioinformatics/btw720.

13. Adel Javanmard, Andrea Montanari and Federico Ricci-Tersenghi, "*Phase Transitions in Semidefinite Relaxations,*" In Proceedings of the National Academy of Sciences (PNAS), 113(16): E2218-E2223, 2016. doi: 10.1073/pnas.1523097113.

14. S. Akbari, A. Daemi, O.Hatami, A. Javanmard, A. Mehrabian, "*Nowhere-zero Unoriented Flows in Hamiltonian Graphs,*" Ars Combinatoria Journal, 120:51-63, 2015.

15. Adel Javanmard and Andrea Montanari, "*Confidence Intervals and Hypothesis Testing for High-Dimensional Regression,*" Journal of Machine Learning Research, 15(1): 2869-2909, 2014.

16. Adel Javanmard and Andrea Montanari, "*Hypothesis Testing in High-Dimensional Regression under the Gaussian Random Design Model: Asymptotic Theory,*" IEEE Trans. on Information Theory, 60(10):6522-6554, 2014.

17. Adel Javanmard and Andrea Montanari, "*State Evolution for General Approximate Message Passing Algorithms, with Applications to Spatial Coupling,*" Information and Inference (A Journal of the IMA), 2(2): 115-144, 2013.

18. David L. Donoho, Adel Javanmard, and Andrea Montanari, "*Information-Theoretically Optimal Compressed Sensing via Spatial Coupling and Approximate Message Passing,*" IEEE Trans. on Information Theory, 59(11):7434-7464, 2013.

19. Adel Javanmard and Andrea Montanari, "*Localization from Incomplete Noisy Distance Measurements,*" Foundations of Computational Mathematics, 13(3):297-345, June 2013.

20. G. Hosein Mohimani, Farid Ashtiani, Adel Javanmard, and Maziyar Hamdi, "*Mobility Modeling, Spatial Traffic Distribution, and Probability of Connectivity for Sparse and Dense Vehicular Ad Hoc Networks,*" IEEE Trans. on Vehicular Technology, 58(4):1998 - 2007, May 2009.

21. Adel Javanmard, and Farid Ashtiani, "*Analytical Evaluation of Average Delay and Maximum Stable Throughput along a Typical Two-Way Street for Vehicular Ad-Hoc Networks in Sparse Situation,*" Elsevier Computer Communications, 32(16):1768-1780, Oct. 2009.

22. S. Akbari, A. Daemi, O.Hatami, A. Javanmard, A. Mehrabian,"*Zero-Sum Flows in Regular Graphs,*" Graphs and Combinatorics Journal, 26(5):603-615, Sep 2010.

Refereed Conference Publications

1. Negin Golrezaei, Adel Javanmard and Vahab Mirrokni, "*Dynamic Incentive-Aware Learning: Robust Pricing in Contextual Auctions,*" Thirty-third Conference on Neural Information Processing Systems (NeurIPS 2019).

2. Adel Javanmard and Hamid Nazerzadeh, "*Dynamic pricing in high-dimensions,*" Conference on Two-sided Marketplace Optimization: Search, Pricing, Matching & Growth (TSMO), 2018.

3. Federico Ricci-Tersenghi, Adel Javanmard and Andrea Montanari, "*Performance of a community detection algorithm based on semidefinite programming,*" Journal of Physics Series 699(1):1-11, 2016.

4. Sonia Bhaskar and Adel Javanmard, "*1-Bit Matrix Completion under Exact Low-Rank Constraint,*" Conference on Information Sciences and Systems (CISS), 2015.

5. Adel Javanmard and Andrea Montanari, "*Confidence Intervals and Hypothesis Testing for High-Dimensional Regression,*" Proc. of Advances in Neural Information Processing Systems (NIPS), pages 1187-1195, 2013.

6. Adel Javanmard and Andrea Montanari, "*Model Selection for High-Dimensional Regression under the Generalized Irrepresentability Condition,*" Proc. of Advances in Neural Information Processing Systems (NIPS), pages 3012-3020, 2013.

7. Adel Javanmard and Andrea Montanari, "*Nearly Optimal Sample Size in Hypothesis Testing for High-Dimensional Regression,*" Proc. of Annual Allerton Conference on Communication, Control and Computing, pages 1427-1434, 2013.

8. Animashree Anandkumar, Daniel Hsu, Adel Javanmard, and Sham M. Kakade, "*Learning Linear Bayesian Networks with Latent Variables,*" Proc. of the 30th International Conference on Machine Learning (ICML-2013), 28(1):249-257, 2013.

9. Morteza Ibrahimi, Adel Javanmard, and Benjamin Van Roy, "*Efficient Reinforcement Learning for High Dimensional Linear Quadratic Systems,*" Proc. of Advances in Neural Information Processing Systems (NIPS-2012), pages 2645-2653, 2012.

10. Adel Javanmard and Andrea Montanari, "*Subsampling at Information Theoretically Optimal Rates,*" Proc. of IEEE International Symposium on Information Theory (ISIT), pages 2431-2435, 2012.

11. David L. Donoho, Adel Javanmard, and Andrea Montanari, "*Information-Theoretically Optimal Compressed Sensing via Spatial Coupling and Approximate Message Passing,*" Proc. of IEEE International Symposium on Information Theory (ISIT), pages 1231-1235, 2012.

12. Adel Javanmard and Li Zhang "*The minimax risk of truncated series estimators for symmetric convex polytopes,*" Proc. of IEEE International Symposium on Information Theory (ISIT), pp 1633-1637, 2012. **(Best Student Paper Award Finalist)**

13. Adel Javanmard, Maya Haridasan, and Li Zhang,"*Multi-track Map Matching*", Proc. of International conference on Advances in Geographic Information Systems (SIGSPATIAL), pages 394-397, 2012.

14. Mohammad Alizadeh, Adel Javanmard, Shang-Tse Chuang, Sundar Iyer, and Yi Lu "*Versatile Refresh: Low-Complexity Refresh Scheduling for High-throughput Multi-banked eDRAM*", Proc. of the 12th ACM SIGMETRICS/PERFORMANCE, pages 247-258, 2012.

15. Morteza Ibrahimi, Adel Javanmard, Yashodhan Kanoria, and Andrea Montanari,"*Robust Max-Product Belief Propagation,*" Asilomar Conference on Signals, Systems and Computers, pages 43-49, 2011.

16. Adel Javanmard and Andrea Montanari, "*Localization from Incomplete Noisy Distance Measurements,*" Proc. of IEEE International Symposium on Information Theory (ISIT), pages 1584-1588, 2011. **(Best Student Paper Award Finalist)**

17. Mohammad Alizadeh, Adel Javanmard, and Balaji Prabhakar,"*Analysis of DCTCP: Stability, Convergence, and Fairness*", Proc. of ACM SIGMETRICS, pages 73-84, 2011.

18. A. Javanmard, P. Pad, M. Babaie-Zadeh and C. Jutten, "*Estimating The Mixing Matrix In Underdetermined Sparse Component Analysis (SCA) Using Consecutive Independent component Analysis (ICA)*", Accepted In Proc. 16th European Signal Processing Conference (EUSIPCO), Lausanne, Aug. 2008.

Manuscripts (Under Review)

1. Yash Deshpande, Adel Javanmard and Mohammad Mehrabi, "*Online Debiasing for Adaptively Collected High-dimensional Data*", under review (Annals of Statistics), 2019.

2. Amin Jalali, Adel Javanmard and Maryam Fazel, "*New Computational and Statistical Aspects of Regularized Regression with Application to Rare Feature Selection and Aggregation*" , submitted.

3. Adel Javanmard, Hamid Nazerzadeh and Simeng Shao, "*Multi-Product Dynamic Pricing in High-Dimensions with Heterogenous Price Sensitivity,*" submitted.

GRANT PROPOSALS

1. *NSF Faculty Early Career Development Program (CAREER)*, NSF Division of Mathematical Sciences, Statistics program, 2019.

2. USC Marshall Outlier Research in Business (iORB), 2018.

3. USC Zumberge Individual Faculty Award, 2017.

4. Google Faculty Research Award, 2016.

PhD Students:

- Advisor of *Simeng Shao*, Phd Student: Data Sciences and Operations, Marshall School of Business, University of Southern California.

- Advisor of *Mohammad Mehrabi*, Phd Student: Data Sciences and Operations, Marshall School of Business, University of Southern California.

Online Debiasing for Adaptively Collected High-dimensional Data

– Simons Institute for the Theory of Computing (*Reunion workshop of Foundations of Data Science Program*), 2019 (invited talk)

Analysis of a two-layer neural networks via displacement convexity

– Institute for Outlier Research (iORB) mini-conference, USC Marshall, 2019 (invited talk).
– INFORMS Annual Meeting, Seattle, Washington, 2019 (invited talk).
– International Conference on Continuous Optimization (ICCOPT), Berlin, 2019 (invited talk).
– American Mathematical Society (AMS) Meeting, Honolulu, Hawaii, 2019 (invited talk).
– Wilks Seminar at Princeton University, 2019 (invited talk).
– Rough Landscapes: From Physics to Algorithms, Kavli Institute for Theoretical Physics, 2019 (invited talk).

A Flexible Framework for Hypothesis Testing in High-Dimensions

– Simons Institute for the Theory of Computing (*Foundations of Data Science Program*), 2018 (invited talk)
– Information Theory and Applications Workshop (ITA), 2018 (invited talk).
– Conference on Information Sciences and Systems (CISS), Princeton, 2018 (invited talk).

Dynamic Incentive-Aware Learning: Robust Pricing in Contextual Auctions

– INFORMS Annual Meeting, Seattle, Washington, 2019 (invited talk).
– Simons Institute for the Theory of Computing (*Foundations of Data Science Program*), 2018 (invited talk)
– Google Research, New York, 2018 (invited talk)
– MIT Stochastics and Statistics Seminar, 2018 (invited talk)

Dynamic Pricing in High-dimensions

– Information Theory and Applications Workshop (ITA), 2017 (invited talk).
– MIT Operation Research Seminar, 2017 (invited talk).
– INFORMS Annual Meeting, Houston, TX, 2017 (invited talk).

Online Control of False Discovery Rate

- 10th International Conference on Multiple Comparison Procedures, 2017 (invited talk).
- Probability and Statistics seminar, Math Department, University of Southern California, Jan 2017.
- INFORMS Annual Meeting, Nashville, TN, Nov 2016 (invited talk).
- Joint Statistical Meetings, Seattle, Aug 2015 (invited talk).
- Statistical Learning and Data Science Conference, University of North Carolina, Chapel Hill, June 2016 (invited talk).

Phase Transitions in Semidefinite Programming

- CommNetS Seminar, Electrical Engineering Department, University of Southern California, Jan 2016 (invited talk).

Extracting Biomedical Relationships from Unstructured Documents

- INFORMS Annual Meeting, Philadelphia, PA, Nov 2015 (invited talk).

De-biasing the Lasso: Optimal Sample Size for Gaussian Designs

- Symposium on Sparse Modeling and Its Applications, UCLA, Statistics department, Oct 2015.

Reasoning about Uncertainty in High-Dimensional Data Analysis

- AIM workshop on Inference in High-Dimensional Regression, Palo Alto, Jan 2015 (invited talk)
- UC Berkeley, Nov 2014 (invited talk)
- Massachusetts Institute of Technology (MIT), Mar 2014 (invited talk)
- University of California, Los Angeles (UCLA), Mar 2014 (invited talk)
- Princeton University, Feb 2014 (invited talk)
- University of California, San Diego (UCSD), Feb 2014 (invited talk)
- University of Washington, Feb 2014 (invited talk)
- Microsoft Research, NYC, Feb 2014 (invited talk)
- Wharton School of the University of Pennsylvania, Feb 2014 (invited talk)
- Yale University, Feb 2014 (invited talk)
- University of Southern California (USC), Jan 2014 (invited talk)
- Microsoft Research, Silicon Valley, Jan 2014 (invited talk)

Confidence Intervals and Hypothesis Testing for High-Dimensional Regression

- University of Illinois (UIUC), Nov 2013 (invited talk)

Reasoning about Uncertainty in Social Network Analysis

- INFORMS annual meeting, Minneapolis, MN, Oct 2013 (invited talk)

Nearly Optimal Sample Size in Hypothesis testing for High-Dimensional Regression

- Annual Allerton Conference on Communication, Control and Computing, Oct 2013

Information-Theoretically Optimal Compressed Sensing

- University of Southern California (USC), Jan 2014 (invited talk)
- Information Theory Forum, Stanford, 2013
- Asilomar Conference on Signals, Systems, and Computers, 2012 (invited talk)
- IEEE International Symposium on Information Theory (ISIT), Cambridge, MA, 2012

Subsampling at Information Theoretically Optimal Rates

- IEEE International Symposium on Information Theory (ISIT), Cambridge, MA, 2012

Minimax Risk of Truncated Series Estimators over Symmetric Convex Polytopes

- IEEE International Symposium on Information Theory (ISIT), Cambridge, MA, 2012

Localization from Incomplete Noisy Distance Measurements

- IEEE International Symposium on Information Theory (ISIT), 2011
- Microsoft Research, Silicon Valley, Aug 2011
- IDEAL group, Stanford, Oct 2011

PROFESSIONAL SERVICE

- Session chair, Information Theory and Application (ITA), 2017.
- Session chair, INFORMS Annual Meeting, 2016.

   Program Committee

   – IEEE International Symposium on Information Theory (ISIT), 2019.
   – IEEE International Symposium on Information Theory (ISIT), 2018.

   Referee Services

   - **Journals.** Annals of Statistics, Journal of the American Statistical Association, Journal of Royal Statistical Society, Biometrika, Electronic Journal of Statistics, JSTAT (Journal of Statistical Mechanics: Theory and Experiment), Journal of Econometrics, IEEE Transactions on Information Theory, IEEE Transactions on Signal Processing, IEEE ACM Transactions on Sensor Networks, Journal of Machine Learning Research, Operations Research, Management Science, Statistical Science.
   - **Conference.** Advances in Neural Information Processing Systems (NIPS) 2016, IEEE International Symposium on Information Theory (ISIT) 2011-2012-2013-2014-2015, 2016,2017, International Conference on Machine Learning (ICML) 2012, 2017, Conference on Learning Theory (COLT) 2013, 2017, IEEE Information Theory Workshop (ITW) 2012, 2017.

Last update: January, 2020