

Stanford



Amin Saberi

Professor of Management Science and Engineering

CONTACT INFORMATION

- **Administrator**

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Bio

BIO

Amin Saberi is Professor of Management Science and Engineering at Stanford University. He received his B.Sc. from Sharif University of Technology and his Ph.D. from Georgia Institute of Technology in Computer Science. His research interests include algorithms, design and analysis of social networks, and applications. He is a recipient of the Terman Fellowship, Alfred Sloan Fellowship and several best paper awards.

Amin was the founding CEO and chairman of NovoEd Inc., a social learning environment designed in his research lab and used by universities such as Stanford as well as non-profit and for-profit institutions for offering courses to hundreds of thousands of learners around the world.

ACADEMIC APPOINTMENTS

- Professor, Management Science and Engineering
- Member, Bio-X
- Member, Institute for Computational and Mathematical Engineering (ICME)

PROFESSIONAL EDUCATION

- BS, Sharif Institute of Technology, Tehran, Iran , Computer Science (2000)
- PhD, Georgia Institute of Technology , Computer Science (2004)

Teaching

COURSES

2021-22

- Market Design in Action: MS&E 239 (Spr)
- Matching Theory: MS&E 319 (Spr)
- Mathematical Programming and Combinatorial Optimization: MS&E 112, MS&E 212 (Aut)

2020-21

- Approximation Algorithms: MS&E 319 (Win)

- Mathematical Programming and Combinatorial Optimization: MS&E 112, MS&E 212 (Aut)
- Network Structure and Epidemics: MS&E 235, MS&E 337 (Aut)

2019-20

- Incentives and Algorithms: MS&E 230 (Spr)
- Matching Theory: MS&E 319 (Aut)
- Part-Time Practical Training: MS&E 208E (Aut)
- Practical Training: MS&E 208A (Aut)
- Practical Training: MS&E 208B (Aut)
- Practical Training: MS&E 208C (Aut)
- Practical Training: MS&E 208D (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Mobin YahyazadehJeloudar

Doctoral Dissertation Advisor (AC)

Yeganeh Ali Mohammadi

Master's Program Advisor

Julia Heymach, Matthew Jacquez, Thomas Ma, Zecheng Wang, Qasim Zafar

Doctoral (Program)

Jiale Chen, Tristan Pollner, Mohammad Roghani, Keertana Veeramony Chidambaram

Publications

PUBLICATIONS

- **Assignment Mechanisms Under Distributional Constraints** *OPERATIONS RESEARCH*
Ashlagi, I., Saberi, A., Shamel, A.
2020; 68 (2): 467–79
- **Edge Weighted Online Windowed Matching**
Ashlagi, I., Burq, M., Dutta, C., Jaillet, P., Saberi, A., Sholley, C., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 729–42
- **Competition in Ride-Hailing Markets**
Ahmadinejad, A., Nazerzadeh, H., Saberi, A., Skochdopole, N., Sweeney, K., Caragiannis, Mirrokni, Nikolova, E.
SPRINGER INTERNATIONAL PUBLISHING AG.2019: 333
- **Nearly Optimal Pricing Algorithms for Production Constrained and Laminar Bayesian Selection**
Anari, N., Niazadeh, R., Saberi, A., Shamel, A., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 91–92
- **Generating Random Networks Without Short Cycles** *OPERATIONS RESEARCH*
Bayati, M., Montanari, A., Saberi, A.
2018; 66 (5): 1227–46
- **Smoothed Analysis of Discrete Tensor Decomposition and Assemblies of Neurons**
Anari, N., Daskalakis, C., Maass, W., Papadimitriou, C. H., Saberi, A., Vempala, S., Bengio, S., Wallach, H., Larochelle, H., Grauman, K., CesaBianchi, N., Garnett, R.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2018

- **Approximating the Largest Root and Applications to Interlacing Families**
Anari, N., Gharan, S., Saberi, A., Srivastava, N., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 1015–28
- **Diffusion, Seeding, and the Value of Network Information**
Akbarpour, M., Malladi, S., Saberi, A., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 641
- **Creating Crowdsourced Research Talks at Scale**
Vaish, R., Goyal, S., Saberi, A., Goel, S., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 1–11
- **Approximation Algorithms for Computing Maximin Share Allocations** *ACM TRANSACTIONS ON ALGORITHMS*
Amanatidis, G., Markakis, E., Nikzad, A., Saberi, A.
2017; 13 (4)
- **An $O(\log n/\log \log n)$ -Approximation Algorithm for the Asymmetric Traveling Salesman Problem** *OPERATIONS RESEARCH*
Asadpour, A., Goemans, M. X., Madry, A., Gharan, S., Saberi, A.
2017; 65 (4): 1043-1061
- **How Gamification Affects Physical Activity: Large-scale Analysis of Walking Challenges in a Mobile Application.** *Proceedings of the ... International World-Wide Web Conference. International WWW Conference*
Shameli, A., Althoff, T., Saberi, A., Leskovec, J.
2017; 2017: 455–63
- **Simply Exponential Approximation of the Permanent of Positive Semidefinite Matrices**
Anari, N., Gurvits, L., Gharan, S., Saberi, A., IEEE
IEEE.2017: 914–25
- **Mobilizing the Crowd to Create an Open Repository of Research Talks**
Vaish, R., Goel, S., Saberi, A., ACM
ASSOC COMPUTING MACHINERY.2017: 311-314
- **A Simple and Efficient Algorithm for Computing Market Equilibria** *ACM TRANSACTIONS ON ALGORITHMS*
Fleischer, L., Garg, R., Kapoor, S., Khandekar, R., Saberi, A.
2016; 12 (3)
- **Approximation Algorithms for Computing Maximin Share Allocations**
Amanatidis, G., Markakis, E., Nikzad, A., Saberi, A., Halldorsson, M. M., Iwama, K., Kobayashi, N., Speckmann, B.
SPRINGER-VERLAG BERLIN.2015: 39-51
- **ASYMPTOTIC BEHAVIOR AND DISTRIBUTIONAL LIMITS OF PREFERENTIAL ATTACHMENT GRAPHS** *ANNALS OF PROBABILITY*
Berger, N., Borgs, C., Chayes, J. T., Saberi, A.
2014; 42 (1): 1-40
- **Message-Passing Algorithms for Sparse Network Alignment** *ACM TRANSACTIONS ON KNOWLEDGE DISCOVERY FROM DATA*
Bayati, M., Gleich, D. F., Saberi, A., Wang, Y.
2013; 7 (1)
- **Dynamic Pay-Per-Action Mechanisms and Applications to Online Advertising** *OPERATIONS RESEARCH*
Nazerzadeh, H., Saberi, A., Vohra, R.
2013; 61 (1): 98-111
- **Algorithmic Solutions for Envy-Free Cake Cutting** *OPERATIONS RESEARCH*
Deng, X., Qi, Q., Saberi, A.
2012; 60 (6): 1461-1476
- **Online Stochastic Matching: Online Actions Based on Offline Statistics** *MATHEMATICS OF OPERATIONS RESEARCH*
Manshadi, V. H., Gharan, S. O., Saberi, A.
2012; 37 (4): 559-573

- **Santa Claus Meets Hypergraph Matchings** *ACM TRANSACTIONS ON ALGORITHMS*
Asadpour, A., Feige, U., Saberi, A.
2012; 8 (3)
- **Online Optimization with Uncertain Information** *ACM TRANSACTIONS ON ALGORITHMS*
Mahdian, M., Nazerzadeh, H., Saberi, A.
2012; 8 (1)
- **Price of Correlations in Stochastic Optimization** *OPERATIONS RESEARCH*
Agrawal, S., Ding, Y., Saberi, A., Ye, Y.
2012; 60 (1): 150-162
- **Distributed Node Placement Algorithms for Constructing Well-Connected Sensor Networks** *IEEE INFOCOM Conference*
Friend, A. J., Manshadi, V. H., Saberi, A.
IEEE.2012: 810–818
- **Discrete Fixed Points: Models, Complexities, and Applications** *MATHEMATICS OF OPERATIONS RESEARCH*
Deng, X., Qi, Q., Saberi, A., Zhang, J.
2011; 36 (4): 636-652
- **Some computational tools for digital archive and metadata maintenance** *BIT NUMERICAL MATHEMATICS*
Gleich, D. F., Wang, Y., Meng, X., Ronaghi, F., Gerritsen, M., Saberi, A.
2011; 51 (1): 127-154
- **A Randomized Rounding Approach to the Traveling Salesman Problem** *52nd Annual IEEE Symposium on Foundations of Computer Science (FOCS)*
Gharan, S. O., Saberi, A., Singh, M.
IEEE COMPUTER SOC.2011: 550–559
- **Social Influence and Evolution of Market Share** *INTERNET MATHEMATICS*
Ceyhan, S., Mousavi, M., Saberi, A.
2011; 7 (2): 107-134
- **Online Stochastic Matching: Online Actions Based on Offline Statistics** *22nd Annual ACM/SIAM Symposium on Discrete Algorithms*
Manshadi, V. H., Gharan, S. O., Saberi, A.
SIAM.2011: 1285–1294
- **The Asymmetric Traveling Salesman Problem on Graphs with Bounded Genus** *22nd Annual ACM/SIAM Symposium on Discrete Algorithms*
Gharan, S. O., Saberi, A.
SIAM.2011: 967–975
- **A Sequential Algorithm for Generating Random Graphs** *ALGORITHMICA*
Bayati, M., Kim, J. H., Saberi, A.
2010; 58 (4): 860-910
- **The spread of innovations in social networks** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Montanari, A., Saberi, A.
2010; 107 (47): 20196-20201
- **Advertisement allocation for generalized second-pricing schemes** *OPERATIONS RESEARCH LETTERS*
Goel, A., Mahdian, M., Nazerzadeh, H., Saberi, A.
2010; 38 (6): 571-576
- **How to Distribute Antidote to Control Epidemics** *RANDOM STRUCTURES & ALGORITHMS*
Borgs, C., Chayes, J., Ganesh, A., Saberi, A.
2010; 37 (2): 204-222
- **On the Dynamic Response of a Saturating Static Feedback-Controlled Single Integrator Driven by White Noise** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
Wen, Z., Roy, S., Saberi, A.
2010; 55 (4): 959-965

- **Approximating power indices: theoretical and empirical analysis** *AUTONOMOUS AGENTS AND MULTI-AGENT SYSTEMS*
Bachrach, Y., Markakis, E., Resnick, E., Procaccia, A. D., Rosenschein, J. S., Saberi, A.
2010; 20 (2): 105-122
- **An $O(\log n/\log \log n)$ -approximation Algorithm for the Asymmetric Traveling Salesman Problem** *21st Annual ACM/SIAM Symposium on Discrete Algorithms*
Asadpour, A., Goemans, M. X., Madry, A., Gharan, S. O., Saberi, A.
SIAM.2010: 379–389
- **Correlation Robust Stochastic Optimization** *21st Annual ACM/SIAM Symposium on Discrete Algorithms*
Agrawal, S., Ding, Y., Saberi, A., Ye, Y.
SIAM.2010: 1087–1096
- **AN APPROXIMATION ALGORITHM FOR MAX-MIN FAIR ALLOCATION OF INDIVISIBLE GOODS** *SIAM JOURNAL ON COMPUTING*
Asadpour, A., Saberi, A.
2010; 39 (7): 2970-2989
- **Subgraph Sparsification and Nearly Optimal Ultrasparsifiers** *42nd ACM Symposium on Theory of Computing*
Kolla, A., Makarychev, Y., Saberi, A., Teng, S.
ASSOC COMPUTING MACHINERY.2010: 57–65
- **Convergence to Equilibrium in Local Interaction Games** *SI GECOM EXCHANGES*
Montanari, A., Saberi, A.
2009; 8 (1)
- **Cutting a Cake for Five People** *5th International Conference on Algorithmic Aspects in Information and Management*
Saberi, A., Wang, Y.
SPRINGER-VERLAG BERLIN.2009: 292–300
- **Convergence to Equilibrium in Local Interaction Games** *50th Annual IEEE Symposium on Foundations of Computer Science*
Montanari, A., Saberi, A.
IEEE COMPUTER SOC.2009: 303–312
- **Generating random Tanner-graphs with large girth** *IEEE Information Theory Workshop (ITW)*
Bayati, M., Keshavan, R., Montanari, A., Oh, S., Saberi, A.
IEEE.2009: 154–157
- **Generating Random Graphs with Large Girth** *20th Annual ACM-SIAM Symposium on Discrete Algorithms*
Bayati, M., Montanari, A., Saberi, A.
SIAM.2009: 566–575
- **On the Inefficiency Ratio of Stable Equilibria in Congestion Games** *5th International Workshop on Internet and Network Economics*
Asadpour, A., Saberi, A.
SPRINGER-VERLAG BERLIN.2009: 545–552
- **Algorithms for Large, Sparse Network Alignment Problems** *9th IEEE International Conference on Data Mining*
Bayati, M., Gerritsen, M., Gleich, D. F., Saberi, A., Wang, Y.
IEEE.2009: 705–710
- **The complexity of equilibria: Hardness results for economies via a correspondence with games** *Workshop on Excursions in Algorithmics*
Codonotti, B., Saberi, A., Varadarajan, K., Ye, Y.
ELSEVIER SCIENCE BV.2008: 188–98
- **Market Equilibrium via a Primal-Dual Algorithm for a Convex Program** *JOURNAL OF THE ACM*
Devanur, N. R., Papadimitriou, C. H., Saberi, A., Vazirani, V. V.
2008; 55 (5)
- **On the disturbance response and external stability of a saturating static-feedback-controlled double integrator** *AUTOMATICA*
Wen, Z., Roy, S., Saberi, A.
2008; 44 (8): 2191-2196

- **A Monte Carlo method for solving unsteady adjoint equations** *JOURNAL OF COMPUTATIONAL PHYSICS*
Wang, Q., Gleich, D., Saberi, A., Etemadi, N., Moin, P.
2008; 227 (12): 6184-6205
- **Minimizing effective resistance of a graph** *SIAM REVIEW*
Ghosh, A., Boyd, S., Saberi, A.
2008; 50 (1): 37-66
- **Stochastic Submodular Maximization** *4th International Workshop on Internet and Network Economics*
Asadpour, A., Nazerzadeh, H., Saberi, A.
SPRINGER-VERLAG BERLIN.2008: 477-489
- **A Fast and Simple Algorithm for Computing Market Equilibria** *4th International Workshop on Internet and Network Economics*
Fleischer, L., Garg, R., Kapoor, S., Khandekar, R., Saberi, A.
SPRINGER-VERLAG BERLIN.2008: 19-30
- **Santa Claus Meets Hypergraph Matchings** *11th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems/12th International Workshop on Randomization and Computation*
Asadpour, A., Feige, U., Saberi, A.
SPRINGER-VERLAG BERLIN.2008: 10-20
- **Cell breathing in wireless LANs: Algorithms and evaluation** *IEEE TRANSACTIONS ON MOBILE COMPUTING*
Bahl, P. (., Hajiaghayi, M. T., Jain, K., Mirrokni, S. V., Qiu, L., Saberi, A.
2007; 6 (2): 164-178
- **AdWords and generalized Online matching** *JOURNAL OF THE ACM*
Mehta, A., Saberi, A., Vazirani, U., Vazirani, V.
2007; 54 (5)
- **Sponsored Search Auctions** *ALGORITHMIC GAME THEORY*
Lahaie, S., Pennock, D. M., Saberi, A., Vohra, R. V., Nisan, N., Roughgarden, T., Tardos, E., Vazirani, V. V.
2007: 699-716
- **An Approximation Algorithm for Max-Min Fair Allocation of Indivisible Goods** *39th Annual ACM Symposium on Theory of Computing*
Asadpour, A., Saberi, A.
ASSOC COMPUTING MACHINERY.2007: 114-121
- **A sequential algorithm for generating random graphs** *10th Int Workshop on Approximation Algorithms for Combinatorial Optimization Problems/11th Int Workshop on Randomization and Computation*
Bayati, M., Kim, J. H., Saberi, A.
SPRINGER-VERLAG BERLIN.2007: 326-340
- **Allocating Online Advertisement Space with Unreliable Estimates** *8th Annual Conference on Electronic Commerce (EC 2007)*
Mahdian, M., Nazerzadeh, H., Saberi, A.
ASSOC COMPUTING MACHINERY.2007: 288-294
- **Towards topology aware networks** *26th IEEE Conference on Computer Communications (INFOCOM 2007)*
Gkantsidis, C., Goel, G., Mihail, M., Saberi, A.
IEEE.2007: 2591-2595
- **Approximating Nash Equilibria using Small-Support Strategies** *8th Annual Conference on Electronic Commerce (EC 2007)*
Feder, T., Nazerzadeh, H., Saberi, A.
ASSOC COMPUTING MACHINERY.2007: 352-354
- **On certain connectivity properties of the Internet topology** *44th Annual IEEE Symposium on Foundations of Computer Science*
Mihail, M., Papadimitriou, C., Saberi, A.
ACADEMIC PRESS INC ELSEVIER SCIENCE.2006: 239-51
- **Random walks in peer-to-peer networks: Algorithms and evaluation** *PERFORMANCE EVALUATION*
Gkantsidis, C., Mihail, M., Saberi, A.

2006; 63 (3): 241-263

- **A local switch Markov chain on given degree graphs with application in connectivity of peer-to-peer networks** *47th Annual IEEE Symposium on Foundations of Computer Science*
Feder, T., Guetz, A., Mihail, M., Saberi, A.
IEEE COMPUTER SOC.2006: 69–76
- **Random Walks with Lookahead on Power Law Random Graphs** *INTERNET MATHEMATICS*
Mihail, M., Saberi, A., Tetali, P.
2006; 3 (2): 147-152
- **Leontief Economies Encode Nonzero Sum Two-Player Games** *17th ACM-SIAM Symposium on Discrete Algorithms*
Codonotti, B., Saberi, A., Varadarajan, K., Ye, Y.
SIAM.2006: 659–667
- **On the core of the multicommodity flow game** *4th ACM Conference on Electronics Commerce (EC'03)*
Markakis, E., Saberi, A.
ELSEVIER SCIENCE BV.2005: 3–10
- **Hybrid search schemes for unstructured peer-to-peer networks** *24th Annual Joint Conference of the IEEE Computer and Communications Societies*
Gkantsidis, C., Mihail, N., Saberi, A.
IEEE COMPUTER SOC.2005: 1526–1537
- **On the Spread of Viruses on the Internet** *16th Annual ACM-SIAM Symposium on Discrete Algorithms*
Berger, N., Borgs, C., Chayes, J. T., Saberi, A.
SIAM.2005: 301–310
- **Price of anarchy, locality gap, and a network service provider game** *1st International Workshop on Internet and Network Economics*
Devanur, N., Garg, N., Khandekar, R., Pandit, V., Saberi, A., Vazirani, V.
SPRINGER-VERLAG BERLIN.2005: 1046–1055
- **Random walks in peer-to-peer networks** *23rd Annual Joint Conference of the IEEE Computer and Communications Societies*
Gkantsidis, C., Mihail, M., Saberi, A.
IEEE.2004: 120–130
- **Greedy facility location algorithms analyzed using dual fitting with factor-revealing LP** *JOURNAL OF THE ACM*
Jain, K., Mahdian, M., Markakis, E., Saberi, A., Vazirani, V. V.
2003; 50 (6): 795-824
- **On certain connectivity properties of the Internet topology** *44th Annual IEEE Symposium on Foundations of Computer Science*
Mihail, M., Papadimitriou, C., Saberi, A.
IEEE COMPUTER SOC.2003: 28–35
- **Approximating market equilibria** *6th Int Workshop on Approximation Algorithms for Combinatorial Optimization Problems/7th Int Workshop on Randomization and Approximation Techniques in Computer Science*
Jain, K., Mahdian, M., Saberi, A.
SPRINGER-VERLAG BERLIN.2003: 98–108
- **On the hardness of optimal auctions** *43rd Annual IEEE Symposium on Foundations of Computer Science*
Ronen, A., Saberi, A.
IEEE COMPUTER SOC.2002: 396–405
- **Market equilibrium via a primal-dual-type algorithm** *43rd Annual IEEE Symposium on Foundations of Computer Science*
Devanur, N. R., Papadimitriou, C. H., Saberi, A., Vazirani, V. V.
IEEE COMPUTER SOC.2002: 389–395
- **A greedy facility location algorithm analyzed using dual fitting** *4th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems/5th Int Workshop on Randomization and Approximation Techniques in Comp Sci*
Mahdian, M., Markakis, E., Saberi, A., Vazirani, V.
SPRINGER-VERLAG BERLIN.2001: 127–137

- **On a conjecture of Keedwell and the cycle double cover conjecture** *DISCRETE MATHEMATICS*
Mahdian, M., Mahmoodian, E. S., Saberi, A., Salavatipour, M. R., Tusserkani, R.
2000; 216 (1-3): 287-292