

# Stanford

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## Amin Saberi

Associate Professor of Management Science and Engineering and, by courtesy, of Electrical Engineering

### CONTACT INFORMATION

- **Administrator**

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### Bio

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#### BIO

Amin Saberi is an Associate Professor and 3COM faculty scholar in 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, approximation algorithms, and algorithmic aspects of games, markets, and networks. Amin Saberi's research is supported by National Science Foundation (under grants CCF 0546889, 0729586, and 0915145), Library of Congress, Stanford Clean Slate Design for the Internet, and Google. His most recent awards include an Alfred Sloan Fellowship and best paper awards in FOCS 2011 and SODA 2010.

#### ACADEMIC APPOINTMENTS

- Associate Professor, Management Science and Engineering
- Associate Professor (By courtesy), Electrical Engineering
- Member, Bio-X

#### PROGRAM AFFILIATIONS

- 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

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#### COURSES

##### 2017-18

- Introduction to Optimization (Accelerated): ENGR 62X, MS&E 111X, MS&E 211X (Win)
- Network Analytics: MS&E 235 (Win)

##### 2016-17

- Analytics in Action: MS&E 235 (Spr)
- Approximation Algorithms: MS&E 319 (Aut)
- Mathematical Programming and Combinatorial Optimization: MS&E 112, MS&E 212 (Win)

#### 2015-16

- Approximation Algorithms: MS&E 319 (Aut)
- Mathematical Programming and Combinatorial Optimization: MS&E 112, MS&E 212 (Win)
- Networks, Markets, and Crowds: CME 237, MS&E 237 (Spr)

#### 2014-15

- Introduction to Optimization: ENGR 62, MS&E 111 (Win)
- Spectral Graph Theory and Algorithmic Applications: CME 337, MS&E 337 (Spr)

## STANFORD ADVISEES

### Doctoral Dissertation Advisor (AC)

Nolan Skochdopole

### Master's Program Advisor

Kevin Li

### Doctoral (Program)

Suleyman Kerimov, Seyed Ali Shamel, Kirankumar Shiragur

## Publications

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### PUBLICATIONS

- **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
- **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
- **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)
- **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
- **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
- **Leontief Economies Encode Nonzero Sum Two-Player Games** *17th ACM-SIAM Symposium on Discrete Algorithms*  
Codenotti, B., Saberi, A., Varadarajan, K., Ye, Y.  
SIAM.2006: 659–667
- **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
- **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
- **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