

# Arash Asadpour

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RESEARCH INTERESTS   ◇ Optimization, Stochastic Optimization, Combinatorial Optimization  
◇ Game Theory, Search and Matching Theory  
◇ Approximation Algorithms, Randomized Algorithms

EDUCATION   ◇ **Stanford University**, Stanford, CA  
**Ph.D.** in Management Science and Engineering. Major: Operations Research, 2005-now.  
Relevant Courses:  
· Linear and Nonlinear Optimization, Stochastic Systems, Dynamic Programming and Stochastic Control, Queuing Systems and Processing Networks.  
· Dynamics and Learning in Games, Competition and Cooperation in Communication Networks, Computation of Equilibria, Inference in Graphical Models, Algorithmic Game Theory, Foundations of Sponsored Search.  
· Approximation Algorithms, Randomized Algorithms, Network Algorithms, Metric Embedding and Algorithmic Applications, Geometry and Markov Chains, Modern Theory of Markov Chains, Information Networks.  
◇ **Sharif University of Technology**, Tehran, Iran  
**B.Sc.** in Computer Engineering, 2001-2005.  
Thesis Title: Market Equilibrium; Algorithms and Heuristics.

HONORS AND AWARDS   ◇ Best Paper Award, 21st Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2010.  
◇ Dantzig-Lieberman Operations Research Fellowship, Stanford University, 2008 and 2009.  
◇ Stanford School of Engineering Fellowship, 2005-2006.  
◇ 1st Rank, National Graduate Entrance Exam in Computer Engineering, Tehran, Iran, Spring 2004.  
◇ 7th Rank, Iran's Nationwide University Entrance Exam for Engineering and Applied Mathematics among more than 350,000 participants, Summer 2001.  
◇ Silver Medal, 9th and 10th Iranian National Olympiad in Informatics, Summer 1999 and 2000.

WORK EXPERIENCE   ◇ **Internship:**  
· **Microsoft Research New England, Cambridge, MA (Summer 2009)**  
Studied the effect of dimensionality of preferences in matching markets on the homophily, mixing, and segregation in the emerging equilibrium.  
· **Microsoft Research New England, Cambridge, MA (Summer 2008)**  
Worked on two-sided stable matchings in Bayesian settings and inefficiency ratio of stable equilibria in congestion games.  
· **Microsoft Research, Redmond, WA (Summer 2007)**  
Worked on approximation algorithms for max-min fair allocation problems and mechanism design for ad auctions with reserved prices.  
◇ **Teaching Experience:** Course assistant for

- **Stanford University:** *Stochastic Decision Models*, Winter 2006-2007.
  - **Stanford University:** *Introduction to Optimization*, Fall 2009-2010.
  - ◇ **Reviewer:** ACM Symposium on Theory of Computing (STOC), IEEE Symposium on Foundations of Computer Science (FOCS), ACM Conference on Electronic Commerce (EC), Workshop on Internet and Network Economics (WINE), ACM-SIAM Symposium on Discrete Algorithms (SODA), Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), Workshop on Randomization and Computation (RANDOM).
- PATENTS
- ◇ **Layerable Auction Mechanisms**, with D. Abraham and K. Jain. U.S. Patent filed in 2008.
- SELECTED  
INVITED  
TALKS
- ◇ **Stochastic Submodular Optimization.**  
14<sup>th</sup> INFORMS Annual Meeting, San Diego, October 2009.
  - ◇ **The Inefficiency Ratio of Stable Equilibria in Congestion Games.**  
20<sup>th</sup> International Symposium of Mathematical Programming (ISMP), Chicago, August 2009.
  - ◇ **Randomized Rounding via Maximum Entropy Distributions.**  
15<sup>th</sup> INFORMS Applied Probability Society Conference, Cornell University, July 2009.
  - ◇ **Random Matchings in Forests with Given Marginals.**  
13<sup>th</sup> INFORMS Annual Meeting, Washington, D.C., October 2008.
  - ◇ **Max-min Fair Allocation of Indivisible Goods.**  
IBM Almaden Research Center, May 2008.
- PUBLICATIONS
- ◇ **An  $O(\log n/\log \log n)$ -Approximation Algorithm for the Asymmetric Traveling Salesman Problem**, with M. Goemans, A. Madry, S. Oveis Gharan, and A. Saberi. In the 21<sup>st</sup> ACM-SIAM Symposium on Discrete Algorithms [SODA], 2010. **Winner of the Best Paper Award.**
  - ◇ **On the Inefficiency Ratio of Stable Equilibria**, with A. Saberi. In the 5<sup>th</sup> Workshop on Internet and Network Economics [WINE], 2009.
  - ◇ **An Approximation Algorithm for Max-min Fair Allocation of Indivisible Goods**, with A. Saberi. In SIAM Journal of Computing, [SICOMP], 2009.
  - ◇ **Stochastic Submodular Maximization**, with H. Nazerzadeh and A. Saberi. In the 4<sup>th</sup> Workshop on Internet and Network Economics [WINE], 2008.
  - ◇ **Santa Claus Meets Hypergraph Matchings**, with U. Feige and A. Saberi. In the 12<sup>th</sup> Workshop on Approximation Algorithms for Combinatorial Optimization Problems [APPROX], 2008.
  - ◇ **An Approximation Algorithm for Max-Min Fair Allocation of Indivisible goods**, with A. Saberi. In the 39<sup>th</sup> ACM Symposium on Theory of Computing [STOC], 2007.
- SUBMITTED  
PAPERS
- ◇ **Maximizing Stochastic Monotone Submodular Functions**, with H. Nazerzadeh and A. Saberi.
  - ◇ **Maximum Entropy Sampling: A New Technique for Randomized Rounding**, with A. Saberi.
  - ◇ **Approximate Pure Equilibria in Cut Games**, with T. Feder and A. Saberi.
- WORKING  
PAPERS
- ◇ **Two-dimensional (Frictional) Matching Markets: Equilibrium, Homophily and Mixing**, with D. Acemoglu, C. Borgs, J. Chayes, and A. Saberi.
  - ◇ **What are the Limits of Market Scoring Rules?**, with S. Oveis Gharan and A. Saberi.
  - ◇ **Mixing Time of Uniform Random Walk on Hypercubes and its Variations via Path-selection Arguments**, with P. Diaconis.