Azarakhsh Malekian

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Academic Appointments

Assistant Professor
Operations Management Division, Rotman School of Management, University of Toronto, Toronto, ON, July 2013-present.

Postdoctoral Fellow
- Massachusetts Institute of Technology, Cambridge, MA, Sep. 2011-August 2013.
- Northwestern University, Evanston, IL, Jan. 2010-August 2011.

Education

Ph.D. in *Computer Science.* 2005-Dec.2009, University of Maryland, College Park.

Journal Papers

J1 **Network Security and Contagion**.
D. Acemoglu, A. Malekian, and A. Ozdaglar,
"Journal of Economic Theory", Volume 166, 2016, Pages 536-585.

J2 **Competitive Equilibrium in Two sided Matching Markets with General Utility Functions**.
S. Alaei, K. Jain and A. Malekian.
"Operations Research", Volume 64, 2016, Pages 638-645.

J3 **Bayesian Incentive Compatibility via Matchings**.
J. Hartline, R. Kleinberg, and A. Malekian.
"Games and Economics Behavior", Volume 92, July 2015, Pages 401-429.

J4 **Improved Algorithms for Data Migration**.
S. Khuller, Y. Kim, A. Malekian.
"Algorithmica" 63(1-2), pages 347-362, 2012.

J5 **To Fill or not to Fill: The Gas Station Problem**.
S. Khuller, A. Malekian, and J. Mestre.
"ACM Transactions on Algorithms" 7(3): 36 , 2011.

J6 **Energy Efficient Monitoring in Sensor Networks**.
A. Deshpande, S. Khuller, A. Malekian, and M. Toossi.
"Algorithmica" 59(1), pages 94-114, 2011.

J7 **On Random Sampling Auctions for Digital Goods**.
S. Alaei, A. Malekian, and A. Srinivasan.
"ACM Transactions on Economics and Computation", Volume 2, Issue 3, July 2014 Article No. 11.

Under Review/Working Papers

- **Privacy-Constrained Network Formation**.
D. Acemoglu, A. Makhdoumi, A. Malekian, and A. Ozdaglar,
"Games and Economics Behavior", accepted with minor revision, 2016, revision has been submitted.

- **Informational Braess' Paradox: The Effect of Information on Traffic Congestion**.
D. Acemoglu, A. Makhdoumi, A. Malekian, And A. Ozdaglar,
Second round review, *"Operations Research"*, 2017.

- **Efficient Computation of Optimal Auctions via Reduced Forms**.
  S. Alaei, H. Fu, N. Haghpanah, J. Hartline, A. Malekian, accepted with minor revision, *"Mathematics of Operations Research"*, 2017.

- **Strategic Dynamic Pricing with Network Externalities**.
  A. Makhdoumi, A. Malekian, and A. Ozdaglar,
  To be submitted, 2017.

- **A Dynamic Model of Crowdfunding**.
  S. Alaei, A. Malekian, and M. Mostagir,
  To be submitted, 2017.

Awards & Honors	- **Best Student Paper Award**, WINE 2009, *An Analysis of Troubled Assets Reverse Auction*. - **Bronze Medal**, National Olympiad in Informatics, Iran, 1997. - **Ranked 1st**, National Scientific Olympiad in Computer Science and Engineering, Iran, 2002. - **Ranked 1st**, National Graduate Entrance Examination (Software Engineering), Iran, 2002.

Conferences Proceedings(Refereed)

C1 **A Dynamic Model of Crowdfunding**,
S. Alaei, A. Malekian, and M. Mostagir.
"ACM Conference on Economics and Computation"(EC), 2016.

C2 **Privacy-Constrained Network Formation**.
with D. Acemoglu, A. Makhdoumi, and A. Ozdaglar.
"ACM Performance Evaluation Review" (PER), Vol. 43, No. 3, December 2015.

C3 **Competitive Equilibrium in Electricity Markets with Heterogeneous Users and Price Fluctuation Penalty**,
with A. Ozdaglar, E. Wei.
"Conference on Decision and Control"(CDC), 2014.

C4 **Competitive Equilibrium in Electricity Markets with Heterogeneous Users and Ramping Constraints**,
with A. Ozdaglar, E. Wei.
"Allerton Conference", 2013.

C5 **Bayesian Mechanism Design for Budget-Constrained Agents**.
Shuchi Chawla, David Malec, Azarakhsh Malekian.
"ACM conference on Electronic Commerce" (EC), pages 253-262, 2011.

C6 **Baysian Algorithmic Mechanism Design: Multi Dimensional Setting**.
Jason Hartline, Robert Kleinberg, Azarakhsh Malekian.
"Symp. on Discrete Algorithms" (SODA), pages 734-747, 2011.

C7 **A Novel Approach for Propagating Distrust**. Christian Borgs, Jennifer Chayes, Adam Kalai, Azarakhsh Malekian, Moshe Tennenholtz.
"Workshop on Internet & Network Economics" (WINE),
pages 87-105, 2010.

C8 **Balanced Allocation with Succinct Representation**.
Saeed Alaei, Azarakhsh Malekian, Ravi Kumar, Erik Vee.
"ACM SIGKDD conference on knowledge discovery and data mining" (KDD),
pages 523-532, 2010.

C9 **An Analysis of Troubled Assets Reverse Auction**.
Saeed Alaei, Azarakhsh Malekian.
"Workshop on Internet & Network Economics" (WINE), pages 398-409, 2009.
Recipient of the Best Student Paper Award.

C10 **Online Allocation of Display Advertisements subject to Advanced Sales Contracts**.
Saeed Alaei, Esteban Arcaute, Samir Khuller, Wenjing Ma, Azarakhsh Malekian, John A. Tomlin.
" International Workshop on Data Mining and Audience Intelligence for Advertising" (ADKDD), pages 69-77, 2009.

C11 **On Random Sampling Auctions for Digital Goods**.
Saeed Alaei, Azarakhsh Malekian, Aravind Srinivasan.
"ACM conference on Electronic Commerce" (EC), pages 187-196, 2009.

C12 **Query Rewrites for Keyword-based Advertising**.
Chi Chao Chang, Ravi Kumar, Azarakhsh Malekian, Grant Wang.
"ACM Conference on Electronic Commerce" (EC), pages 10-19, 2008.

C13 **Energy Efficient Monitoring in Sensor Networks**.
Amol Deshpande, Samir Khuller, Azarakhsh Malekian, Mohammad Toossi.
"Latin American Theoretical Informatics" (LATIN), pages 436-448, 2008.

C14 **To Fill or not to Fill: The Gas Station Problem**.
Samir Khuller, Azarakhsh Malekian, Julian Mestre.
"European Symp. on Algorithms" (ESA), pages 534-545, 2007.

C15 **Improved Algorithms for Data Migration**.
Samir Khuller, Yoo Ah Kim, Azarakhsh Malekian.
"Workshop on Approximation Algorithms" (APPROX), pages 164-175, 2006.

Patents

- **Optimizing Query Rewrites for Keyword-based Advertising**. Chi Chao Chang, Ravi Kumar, Azarakhsh Malekian, Grant Wang. Document Number # 20090216710.
- **Recommendation Ranking Systems with Distrust**, C. H Borgs, J. T. Chayes, A. T Kalai, A. Malekian and M. Tennenholtz, US Patent, Patent number: 9152969, Publication date: 2015/10/6.

Industry Experience

- **Research Intern. Microsoft Research, New England**
Supervisor: Adam Kalai, Summer 2009.
- **Applied Research Intern. Yahoo! Inc**
Supervisor: Ravi Kumar, Summer 2008.
- **Applied Research Intern. Yahoo! Inc**
Supervisor: Ravi Kumar and Chi Chao chang, Summer 2007.

Teaching Experience

Instructor:
- **Operations Management**(Undergrad)
Rotman Commerce, University of Toronto, Fall 2015, Fall 2016.
- **Advanced Topics in Management Science:Modeling Interactoins on Networks** (PhD)
Rotman School of Management, Spring 2015.
- **Management Science Modeling with Spreadsheets** (Undergrad)
Rotman Commerce, University of Toronto, Fall 2014.
- **Game Theory in Operations** (PhD)
Rotman School of Management, Spring 2014.
- **Statistics for Management** (MBA)
Rotman School of Management, Fall 2013.

Teaching Assistant: University of Maryland

- Data Structures, Design and Analysis of Algorithms, Algorithms, Discrete Mathematics, Programming Languages Concepts, Introduction to Numerical Analysis

Invited Seminars

- "Multidimensional Bayesian Mechanism Design via Reduction", University of Southern California, Marshall School of Business, Feb. 2017.
- "A Dynamic Model of Crowdfunding", University of Toronto, EE department, Feb. 2016.
- "Network Security and Contagion", IPAM, Workshop on "systemic Risk and Financial Networks", 2015.
- "Network Security and Contagion", McMaster University, 2014.
- Yale University, 2013.
- Rotman School of Management, University of Toronto, 2013.
- Rensselaer Polytechnic Institute, 2013
- University of Minnesota, Twin cities, 2013
- Krannert School of Management, Purdue University, 2013
- Yahoo Research, Santa Clara, 2013.
- Harvard University. 2012
- Massachusetts Institute of Technology, 2011
- University of Michigan, Ann Arbor. 2011
- University of Wisconsin, Madison. 2010
- Toyota Institute of Technology, Chicago. 2010
- Google Research, NY. 2010
- Microsoft Research, WA, 2010
- Yahoo Research NY. 2010
- Cornell University. 2010

Professional Activities

- **Committee Member**:
  - 26th International World Wide Web Conference, Perth, Australia, 2017.
  - 18th ACM conference on Economics and Computation (EC), 2017.
  - 11th Ad-Auctions workshop, Oregon, 2015.
  - Conference on Web and Internet Economics(WINE), China, 2014.
  - ACM conference on Electronic Commerce (EC), Spain. 2012.
  - Ad-Auction workshop (AAW), Spain. 2012.
  - Workshop on Bayesian Mechanism Design, Stanford, CA. 2011.
  - Workshop on the Economics of Web Search and Social Networks, Italy. 2013.

- **Cluster Chair**:
  - Informs International Conference 2016.
    "Mechanism design and game theory" cluster co-chair.

- **Session Chair**:
  - Informs International Conference, Hawaii, 2016.
  - Informs, Phoenix, Arizona. 2012.
  - IFORS, Barcelona, Spain, 2014.
  - ISMP, Pittsburgh, US, 2015.

- **Referee**: 2017 MSOM Service SIG conferenc, Econometrica, Journal of Economic Theory, Operations Research, Management Science, Mathematics of Operations Research, Networks, Games and Economics Behavior, Review of Industrial Organization, Transactions on Economics and Computation, Algorithmica, APPROX, ESA, SODA, STOC, EC, WINE, LATIN, SAGT, WWW, ICALP.
- **Co-organizer**: Seminar on Social Networks, Big Data, Influence, and Decision-Making, University of Toronto, Fall 2014.