

# Hamid Nazerzadeh

Associate Professor, Data Sciences and Operations Department  
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## Employment

**Marshall School of Business, University of Southern California, Los Angeles, CA.**

<b>Dean's Associate Professor in Business Administration.</b>	2017–Present
<b>Associate Professor</b> , Department of Data Sciences and Operations.	2016–Present
<b>Assistant Professor</b> , Department of Data Sciences and Operations.	2011–2016

**Viterbi School of Engineering, University of Southern California, Los Angeles, CA.**

<b>Associate Professor (by courtesy)</b> , Department of Computer Science.	2016–Present
<b>Assistant Professor (by courtesy)</b> , Department of Computer Science.	2013–2016

**Uber Technologies Inc., San Francisco, CA.**

<b>Senior Data Scientist &amp; Tech Lead</b> , Marketplace Optimization.	2017–Present
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**Google Inc., New York, NY.**

<b>Visiting Scientist</b> , Market Algorithms Group.	2014
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**Microsoft Corporation, Cambridge, MA.**

<b>Post-doctoral Researcher</b> , Microsoft Research New England Lab.	2009–2011
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**Yahoo! Inc., Sunnyvale, CA.**

<b>Research Intern</b> , Yahoo! Research.	2007–2008
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## Education

**Ph.D., Stanford University, Stanford, CA.** June 2009

Management Science and Engineering Department.  
Advisor: Prof. Amin Saberi, Co-Advisor: Prof. Ashish Goel.  
Dissertation: Optimization & Economic Aspects of Internet Advertising.

**B.Sc., Sharif University of Technology, Tehran, Iran.** June 2005

Management Science and Engineering Department.  
Advisor: Prof. Mohammad Ghodsi.  
Dissertation: Efficient Queriable Distributed Data Structures.

## Honors and Awards

**Ph.D. Achievement Mentoring Award**, Marshall School of Business, USC, 2017.

**Google Faculty Research Award**, 2016.

**Management Science Distinguished Service Award**, 2016.

**INFORMS Revenue Management and Pricing Section Prize**, 2014.

Awarded for the best contribution to the science of pricing and revenue management published in one of the preceding five years.

**Dean's Award for Research Excellence**, Marshall School of Business, USC, 2014.

**Management Science Meritorious Service Award**, 2014.

**Google Faculty Research Award**, 2013.

The only recipient in the area of economics and market algorithms.

**Honorable Mention in George Dantzig Dissertation Awards**, 2009.

Judged for the best dissertations that are innovative and relevant to the practice of operations research and management sciences, awarded by INFORMS.

**Yahoo! Ph.D. Student Fellowship Award**, 2007-2009.

**Stanford School of Engineering Fellowship**, 2005-2006.

**Ranked 1st in Cumulative GPA**, Software major, Computer Engineering Department, Sharif University of Technology, class of 2005.

**Gold Medal** in the 10th Iranian National Olympiad in Informatics, 2000.

## Ph.D. Advising

- Negin Golrezaei, USC Marshall DSO PhD. Role: Advisor. Graduated in 2017. First Position: Assistant Professor of Operations Management at MIT Sloan School of Management.
- Heng Zhang, USC Marshall DSO PhD. Role: Co-advisor. 2015–present.
- Jeunghyun Kim, USC Marshall DSO PhD. Role: Dissertation Committee. Graduated in 2016. First Position: Assistant Director at Moody's Analytics.

## Publications in Journals and Refereed Conference Proceedings<sup>1</sup>

1. Near-Optimality of Coarse Service Grades for Customer Differentiation in Queueing Systems, with R. S. Randhawa.  
*Production & Operations Management*, Forthcoming.
2. Position Ranking and Auction for Online Marketplaces, with Leon Yang Chu and Heng Zhang.  
Appeared as an extend abstract in the Proceedings of the 10th International Symposium on Algorithmic Game Theory (SAGT), 2017.  
Revise & Resubmit, *Management Science*, 2017.
3. Deals or No Deals: Contract Design for Online Advertising, with Vahab Mirrokni.  
Proceedings of the 26th World Wide Web Conference (WWW), 7-14, 2017.

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<sup>1</sup>The names of the authors appear in alphabetical order in all the publications.

4. Auctions with Dynamic Costly Information Acquisition, with N. Golrezaei. *Operations Research*, 65(1), 130-144, 2016.
5. Maximizing Stochastic Monotone Submodular Functions, with A. Asadpour. *Management Science*, 62(8):2374-2391, 2016.
6. Non-Linear Pricing Competition with Private Capacity Information, with G. Perakis. *Operations Research*, 64(2):329-340, 2016.  
A preliminary version, titled "Menu Pricing Competition and a Common Agency with Informed Principals," appeared in the Proceedings of the 12th ACM Conference on Economics and Computation (EC), 2011.
7. Where to Sell: Simulating Auctions from Learning Algorithms, with R. Paes Leme, A. Rostamizadeh, and U. Syed. Proceedings of the ACM Conference on Economics and Computation (EC), 2016.
8. Optimizing Display Advertising Markets: Challenges and Directions, with N. Korula and V. Mirrokni. *IEEE Internet Computing*, 20(1):28-35, 2016.
9. Buy-it-now or Take-a-chance: Price Discrimination through Randomized Auctions, with L. E. Celis, G. Lewis, and M. Mobius. *Management Science*, 60(12):2927-2948, 2014.  
Appeared as an abstract in the Proceedings of the 20th World Wide Web Conference (WWW), 147-156, 2011.
10. Optimal Multi-Period Pricing with Service Guarantees, with C. Borgs, O. Candogan, J. Chayes, and I. Lobel. *Management Science*, 60(7):1792-1811, 2014.  
Appeared as a working paper in the Proceedings of the 7th Web and Internet Economics Conference (WINE), 2011.
11. Real-Time Optimization of Personalized Assortments, with N. Golrezaei and P. Rusmevichetong. *Management Science*, 60(6):1532-1551, 2014.  
Appeared as a working paper in the Proceedings of the 14th ACM Conference on Economics and Computation (EC), 2013.
12. Price Based Protocols For Fair Resource Allocation: Convergence Time Analysis and Extension to Leontief Utilities, with A. Goel. *ACM Transactions on Algorithm*, 10(2):5, 2014.
13. Pricing Schemes for Metropolitan Traffic Data Markets, with N. Golrezaei. Proceedings of 3rd International Conference on Data Management Technologies and Applications (DATA), 266-271, 2014.
14. Optimal Dynamic Mechanism Design and the Virtual Pivot Mechanism, with S. Kakade and I. Lobel. *Operations Research*, 61(4): 837-854, 2013.  
**Best Paper Award**, INFORMS Revenue Management and Pricing Section Prize
15. Dynamic Pay-Per-Action Mechanisms and Applications to Online Advertising, with A. Saberi, and R. Vohra. *Operations Research*, 61(1): 98-111, 2013.  
A preliminary version appeared in the Proceedings of the 17th World Wide Web Conference (WWW), 179-188, 2008.
16. PASS Approximation: A Framework for Designing and Analyzing Heuristics, with U. Feige, N. Immerlica, and V. Mirrokni. *Algorithmica*, 66(2), 450-47, 2013.
17. Online Optimization with Uncertain Information, with M. Mahdian and A. Saberi. *ACM Transactions on Algorithms*, 8(1):2, 2012.
18. Advertisement Allocation for Generalized Second Pricing Scheme, with A. Goel, M. Mahdian, and A. Saberi. *Operations Research Letters*, 38(6): 571-576, 2010.

19. Deterministic Decentralized Search in Random Graphs, with E. Arcaute, N. Chen, R. Kumar, D. Liben-Nowell, M. Mahdian, and Y. Xu. *Internet Mathematics*, 5, 141-154, 2009.
20. Online Story Scheduling for Web Advertising, with A. Dasgupta, A. Ghosh, and P. Raghavan. Proceedings of the 20th ACM-SIAM Symposium on Discrete Algorithms (SODA), 1275-1284, 2009.
21. A Combinatorial Allocation Mechanism with Penalties for Banner Advertising, with U. Feige, N. Immerlica, and V. S. Mirrokni. Proceedings of the 17th World Wide Web Conference (WWW), 2169-2178, 2008.
22. Allocating Online Advertisement Space with Unreliable Estimates, with M. Mahdian and A. Saberi. Proceedings of the 8th ACM Conference on Economics and Computation (EC), 288-294, 2007.
23. Approximating Nash Equilibria Using Small-Support Strategies, with T. Feder and A. Saberi. Proceedings of the 8th ACM Conference on Economics and Computation (EC), 352-354, 2007.
24. Computing Optimal Bundles for Sponsored Search, with A. Ghosh and M. Sundararajan. Proceedings of the 3rd Web and Internet Economics Conference (WINE), 576-583, 2007.
25. RAQ: A Range-Queriable Distributed Data Structure, with M. Ghodsi. Proceedings of the 31st Conference on Current Trends of Informatics (SOFSEM), 269-277, 2005.

## Working Papers

26. Dynamic Reserve Prices for Repeated Auctions: Learning from Bids, with Yash Kanoria. Appeared as a working paper in the Proceedings of the 10th Web and Internet Economics Conference (WINE), 2014.  
Revise & Resubmit, *Operations Research*, 2017.
27. Dynamic Pricing for Customers with Heterogeneous Valuation Decay, with N. Golrezaei and R. Rande-hawa. Revise & Resubmit, *MSOM*, 2017.
28. Boosted Second-price Auctions for Heterogeneous Bidders, with Negin Golrezaei, Max Lin, and Vahab Mirrokni.  
Submitted.
29. Dynamic Pricing in High-dimensions, with Adel Javanmard.  
Submitted.

## Patents

1. Data Center System that Accommodates Episodic Computation, with C. Belady, J. R. Larus, D. Reed, C. Borgs, J. Chayes, I. Lobel, I. Menache, and N. Jain, US-2014/0365402 & US8849469 B2.
2. Pricing Mechanisms for Perishable Time-Varying Resources, with C. Borgs, J. Chayes, U. O. Candogan, and I. Lobel, US-2012/0095940.
3. Randomized Auctions with Priority Options, with L. E. Celis, G. Lewis, M. Mobius, and L. Zen, US-2012/0158522.
4. A Dynamic Mechanism for Selling Online Advertising Space, with S. Kakade and I. Lobel, US-2011/0258052.
5. Algorithms for Storyboarding in Advertising, with A. Dasgupta, and A. Ghosh, US-2010/0063881.
6. Bundling of Query-Related Context for Sponsored Search, with A. Ghosh, US-2009/0248660.
7. System and Method for Optimizing Online Keyword Auctions Subject to Budget and Estimated Query Volume Constraints, with M. Mahdian, US-2009/0254397.

## Research Grants

- Co-PI, “Statistical Learning Mechanisms for Online Ad Markets: Stability and Incentive Compatibility,” Google Faculty Research Award, amount \$65,000, 2016.
- PI, “Dynamic Mechanisms for Online Ad Auctions,” Google Faculty Research Award, amount \$40,000, 2013.
- PI, “Pricing Schemes for Big Data,” awarded by USC Integrated Media System Center, amount \$12,000, 2012.

## Conferences & Invited Talks

### “Surge Pricing”

- Symposium on Network Economics and Game Theory, Caltech, Jan 18.

### “Dynamic Pricing in High-dimensions”

- Marketplace Innovation Workshop, Stanford University, Jun 17.

### “Deals or No Deals: Contract Design for Online Advertising”

- Cornell Tech, New York, Mar 16.
- NYU Stern School of Business, New York, Jan 16.
- Nanyang Business School, Singapore, Nov 15.
- INFORMS Annual Meeting, Philadelphia, PA, Nov 15.
- **Keynote**, Ad Auction Workshop, Portland, OR, Jun 15.
- Marketplace Innovation Workshop, Columbia Business School, Jun 15.
- Sloan School of Management, Massachusetts Institute of Technology, Mar 15.

### “Practical Revenue-Maximizing Auctions”

- Google, Los Angeles, Sep 16.
- MSR Game Theory & Computation Seminar Series, Harvard University, Mar 15.
- Google Research, New York, Jan 15.
- New York Computer Science and Economics Day, New York, NY, Dec 14.
- Distinguished DRO-IEOR Seminar Series, Columbia University, Oct 14.

### “Dynamic Reserve Prices for Repeated Auctions: Learning from Bids”

- MSOM Conference, Toronto, Canada, Jun 15.
- INFORMS Applied Probability Society Conference, Istanbul, Turkey, Jul 15.
- Ad Auction Workshop, Stanford, CA, Jun 14.

### “Real-Time Optimization of Personalized Assortments”

- INFORMS Annual Meeting, San Francisco, CA, Nov 14.
- ORIE Colloquium, Cornell University, Sep 14.
- INFORMS Annual Meeting, Minneapolis, MN, Oct 13.
- MSOM Conference, Fontainebleau, France, Jul 13.

- INFORMS International Meeting, Rome, Italy, Jul 13.
- “Dynamic Mechanism Design with Costly Information Acquisition”
- Ad Auction Workshop, Palo Alto, CA, Jun 14.
  - Information Sciences Seminars, Caltech, Apr 14.
  - Sloan School of Management, Massachusetts Institute of Technology, Apr 13.
  - DIMACS Workshop on Economics of Information Sharing, Stanford University, Feb 13.
- “Buy-it-now or Take-a-chance: Price Discrimination through Randomized Auctions”
- Ross School of Business, Michigan University, Nov 13.
  - Sharif University of Technology, Tehran, Iran, Nov 13.
  - University of Tehran, Tehran, Iran, Nov 13.
  - SoCal Symposium on Network Economics and Game Theory, Los Angeles, Nov 13.
  - INFORMS Annual Meeting, Phoenix, AZ, Oct 12.
  - International Symposium for Mathematical Programming, Berlin, Germany, Aug 12.
  - MSOM Conference, New York, NY, Jun 12.
  - INFORMS RM&P Conference, New York, NY, Jun 11.
- “Optimal Dynamic Mechanism Design”
- Facebook Inc., Menlo Park, CA, Dec 13.
  - Google Research, New York, Oct 13.
  - Foster School of Business, University of Washington, May 13.
  - Southern California OR/OM Day, University of California, Los Angeles, Apr 12.
  - CS-ECON Seminar Series, Duke University, Mar 12.
  - INFORMS Annual Meeting, Austin, TX, Nov 10.
  - INFORMS RM&P Conference, Ithaca, NY, Jun 10.
  - McCombs School of Business, University of Texas at Austin, May 10.
- “Non-Linear Pricing Competition with Private Capacity Constraints”
- Oligo Workshop, Charles III University of Madrid, Spain, Jun 15.
  - INFORMS Annual Meeting, Charlotte, NC, Nov 11.
  - Stern School of Business, New York University, Oct 11.
  - ACM Conference on Economics and Computation, San Jose, CA, Jun 11.
  - MSOM Conference, Ann Arbor, MI, Jun 11.
  - INFORMS RM&P Conference, New York, NY, Jun 11.
- “Online Story Scheduling for Internet Advertising”
- INFORMS Annual Meeting, San Diego, CA, Oct 09.
  - SIAM Symposium on Discrete Algorithms, New York, NY, Jan 09.
- “Online Allocation of Internet Advertising with Uncertain Information”
- Computer Science Department, Harvard University, Jun 10.

- Marshall School of Business, University of Southern California, May 10.
- Market and Social Systems Engineering, University of Pennsylvania, Apr 10.
- Sloan School of Management, Massachusetts Institute of Technology, Dec 09.
- INFORMS Annual Meeting, San Diego, CA, Oct 09.
- Computer Science Department, University of Southern California, Feb 09.
- Computer Science Department, University of California, Los Angeles, Feb 09.
- Graduate School of Business, Columbia University, Jan 09.
- Microsoft Research, New England Lab, Jan 09.

## Professional Services

- **Department Editor**, *Management Science*, 2018–Present.
- **Associate Editor**, *Management Science*, 2017.
- **Associate Editor**, *Operations Research*, 2016–2017.
- Chair, INFORMS RM&P Section Dissertation Award Committee, 2018.
- INFORMS Revenue Management and Pricing Section Prize Committee, 2017.
- Co-Organizer, USC Marshall Operations Management Seminars, 2012–2017.
- INFORMS Professional Recognition Committee, 2016.
- INFORMS Volunteer Service Award Committee, 2016.
- Co-Chair, Ad Auction Workshop, 2016.
- Co-Chair, MSOM Service SIG Conference, 2015.
- Session Chair, INFORMS National Meeting, 2010, 2012, 2013, 2015, 2016, & 2017.

## Program Committees

- ACM Conference on Economics and Computation (EC), 2011, 2013, 2014, 2016, & 2017.
- International World Wide Web Conference (WWW), 2011, 2013, 2015, & 2016.
- Web and Internet Economics (WINE), 2010 & 2012.
- Ad Auction Workshop, 2011, 2013, & 2014.
- ACM Conference on Web Search and Data Mining (WSDM), 2013 & 2014.
- NetEcon, 2012.

**Referee Services** Management Science, Operations Research, Manufacturing and Service Operations Management, Production and Operations Management, Games and Economics Behavior, Journal of Economic Theory, RAND, Operations Research Letters, IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Internet Computing, Algorithmica, ACM Transactions on Economics and Computation, Discrete Optimization.