

Ali Makhdoumi

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Cambridge, MA 02139
- Education**
- Massachusetts Institute of Technology**, Cambridge, MA 2013 - present
Ph.D. Candidate, Department of Electrical Engineering and Computer Science GPA: 5.00/5.00
Thesis Advisors: Prof. Asu Ozdaglar, Prof. Daron Acemoglu
Minor: Statistics
- Massachusetts Institute of Technology**, Cambridge, MA 2011 - 2013
M.S., Department of Electrical Engineering and Computer Science GPA: 5.00/5.00
- Sharif University of Technology**, Tehran, Iran 2006 - 2011
B.Sc. in Electrical Engineering, Communications GPA: 19.44/20
B.Sc. in Pure Mathematics
- Young Scholars Club**, Tehran, Iran 2005 - 2006
Preparation Course for Mathematics Olympiads
- Research Interests** Optimization, learning theory, network science, and game theory with applications to social and technological systems.
- Honors & Awards**
- **Jacobs Presidential Fellowship**, MIT, 2011.
 - **Dean’s Honorary Award**, Sharif University of Technology, 2009.
 - **Ranked 1st in Cumulative GPA**, Electrical Engineering Department and Mathematics Department, Sharif University of Technology, class of 2011.
 - **Gold medalist at 16th National Mathematics Olympiad**, Iran, 2005.
 - **Bronze medalist at 15th National Mathematics Olympiad**, Iran, 2004.
- Journal & Working Papers**
1. D. Acemoglu, A. Makhdoumi, A. Malekian, A. Ozdaglar, “Fast and Slow Learning from Reviews” Submitted, 2017.
 2. A. Makhdoumi, A. Malekian, A. Ozdaglar, “Strategic Dynamic Pricing with Network Effects”, To be Submitted.
 3. D. Acemoglu, A. Makhdoumi, A. Malekian, A. Ozdaglar, “Informational Braess’ Paradox: the Effect of Information on Traffic Congestion”, **Forthcoming, Operations Research**, 2017.
 4. D. Acemoglu, A. Makhdoumi, A. Malekian, A. Ozdaglar, , “Privacy-aware Network Formation”, **Games and Economic Behavior**, 105, pp. 255–275, 2017.
 5. A. Makhdoumi, A. Ozdaglar, “Convergence Rate of Distributed ADMM over Networks”, **IEEE Transactions on Automatic Control**, 62 (10), pp. 5082–5095, 2017.
 6. F. Calmon, A. Makhdoumi, M. Médard, M. Varia, M. Christiansen, K. R. Duffy “Principal Inertia Components and Applications”, **IEEE Transactions on Information Theory**, 63 (8), pp. 5011–5038, 2017.
 7. S. Feizi*, A. Makhdoumi*, K. Duffy, M. Kellis, M. Médard, “Network Maximal Correlation”, **IEEE Transactions on Network Science and Engineering**, 2017. *: equal contribution.

Work in Progress:

1. D. Acemoglu, A. Makhdoumi, A. Malekian, A. Ozdaglar, “Bayesian Social Learning with Heterogeneous Preferences: Effects of Diversity”.
2. K. Drakopoulos, A. Makhdoumi, “Dynamic Mechanism for Selling Data”.

Refereed Conference Papers

1. A. Makhdoumi, A. Malekian, A. Ozdaglar, “Optimal Dynamic Pricing of Network Goods”, Allerton Conference on Communication, Control, and Computing, 2017.
2. A. Rezaee, A. Beirami, A. Makhdoumi, M. Médard, K. Duffy, “Guesswork Subject to a Total Entropy Budget”, Allerton, 2017.
3. A. Makhdoumi, A. Ozdaglar, “Graph Balancing for Distributed Subgradient Methods over Directed Graphs”, IEEE Conference on Decision and Control (CDC), 2015.
4. A. Makhdoumi, F. Calmon, and M. Médard, “Forgot Your Password: Correlation Dilution”, International Symposium on Information Theory (ISIT), 2015.
5. F. Calmon, A. Makhdoumi, M. Médard, “Fundamental Limits of Perfect Privacy,” ISIT, 2015.
6. A. Makhdoumi, S. Huang, M. Médard, Y. Polyanskiy, “On Locally Decodable source Coding,” International Communication Conference (ICC), 2015.
7. A. Beirami, R. Calderbank, M. Christiansen, K. Duffy, A. Makhdoumi, M. Médard, “A geometric perspective on guesswork”, Allerton, 2015.
8. A. Makhdoumi, A. Ozdaglar, “Broadcast-based Distributed Alternating Direction Method of Multiplier”, Allerton, 2014.
9. A. Makhdoumi, S. Salamatian, N. Fawaz, M. Médard, “From Information Bottleneck to Privacy Funnel,” Information Theory Workshop (ITW), 2014.
10. S. Feizi, D. E. Lucani, C. W. Sorensen, A. Makhdoumi, M. Médard, “Tunable Sparse Network Coding for Multicast Networks”, Workshop on Network Coding and Applications, 2014.
11. U. Speidel, T. A. Gulliver, A. Makhdoumi, M. Médard, “Using T-codes as Locally Decodable Source Codes”, ITW, 2014.
12. A. Makhdoumi, N. Fawaz, “Utility-Privacy Trade-off under Statistical Uncertainty”, Allerton, 2013.
13. A. Makhdoumi, H. K. Abadi, P. Pad, H. Saeedi, F. Marvasti, K. Alishahi, “Capacity Achieving Linear Codes with Random Binary Sparse Generating Matrices”, ISIT, 2012.

Teaching & Work Experience

Massachusetts Institute of Technology, Cambridge, MA

Teaching Assistant, Lecturer: Prof. Lizhong Zheng Spring, 2014
Class: 6.437, Inference and Information

Teaching Assistant, Lecturer: Prof. Yury Polyanskiy Spring, 2013
Class: 6.441, Information Theory

Technicolor Research, Palo Alto, CA

Internship Summer, 2013

Patents

1. “Methods and apparatus for utility-aware privacy preserving mapping through additive noise”, A. Makhdoumi, N. Fawaz.
2. “Method and apparatus for utility-aware privacy preserving mapping against inference attacks”, A. Makhdoumi, N. Fawaz.
3. “Method and apparatus for utility-aware privacy preserving mapping in view of collusion and composition”, A. Makhdoumi, N. Fawaz.

Invited Talks & Conference Presentations

- Fast and Slow Learning from Reviews:
 - INFORMS Annual Meeting, Houston, Texas, October 2017.
- Strategic Dynamic Pricing with Network Effects:
 - INFORMS Annual Meeting, Houston, Texas, October 2017.
 - Production and Operations Management Society (POMS) Annual Conference, Seattle, Washington, May 2017.
 - Conference on Communication, Control, and Computing (Allerton), Champaign, Illinois, October 2017.
- Informational Braess' Paradox: the Effect of Information on Traffic Congestion:
 - INFORMS Annual Meeting, Nashville, Tennessee, November 2016.
 - Conference on Communication, Control, and Computing (Allerton), Champaign, Illinois, September 2016.
- Privacy-constrained Network Formation:
 - INFORMS Annual Meeting, Philadelphia, Pennsylvania, November 2015
 - Workshop on the Economics of Networks, Systems and Computation (NetEcon), Portland, Oregon, June 2015.
- Convergence Rate of Distributed ADMM over Networks:
 - INFORMS Annual Meeting, Philadelphia, Pennsylvania, November 2015
 - Modeling and Optimization: Theory and Applications Conference (MOPTA), Bethlehem, Pennsylvania, July 2015.

Professional Services

- **Technical Program Committee Member:** 2016 and 2017 IEEE Global Conference on Signal and Information Processing.
- **Referee for Journals:** Operations Research, Management Science, IEEE Transactions on Network Science and Engineering, IEEE Transactions on Information Theory, IEEE Transactions on Automatic Control, IEEE Transactions on Signal Processing, IEEE Transactions on Information Forensics and Security, Automatica journal of the International Federation of Automatic Control, IEEE Transactions on Communications.
- **Referee and Sub-referee for Conferences:** ACM Symposium on Theory of Computing (STOC), ACM Conference on Economics and Computation (EC), ACM-SIAM Symposium on Discrete Algorithms (SODA), World Wide Web Conference (WWW), IEEE Conference on Decision and Control (CDC), American Control Conference (ACC).

Skills

Python, C, C++, Matlab, Mathematica.