

Yash Kanoria

Updated Jul 2017

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| EMPLOYMENT | Associate Professor (without tenure) | From July 2017 |
| | Assistant Professor Decision, Risk and Operations Division, Graduate School of Business, Columbia University, New York, NY. | July 2013 - June 2017 |
| | Schramm postdoctoral fellow Microsoft Research New England, Cambridge, MA. | Aug 2012 - June 2013 |
| CONTACT | Uris Hall Columbia University New York, NY 10027 | <i>Phone:</i> (650) 353-0476 <i>ykanoria AT columbia POINT edu</i> <i>http://www.columbia.edu/~yk2577</i> |
| EDUCATION | Stanford University , Stanford, CA PhD in Electrical Engineering <i>Adviser:</i> Andrea Montanari <i>Thesis title:</i> Learning in social and economic networks | Sep 2007 - Aug 2012 |
| | Indian Institute of Technology Bombay , India (CPI 10.00/10.00) Bachelor of Technology in Electrical Engineering | Jul 2003 - May 2007 |
| RESEARCH INTERESTS | Matching markets, design and operations of marketplaces and platforms | |
| DISTINCTIONS | NSF CAREER Award | 2017 |
| | Simons-Berkeley Research Fellowship | Fall 2015 |
| | INFORMS JFIG Junior Faculty Paper Award (second prize) | 2014 |
| | Student Paper Award at IEEE Intl. Symposium on Information Theory | 2010 |
| | Numerical Technologies Founders' Prize for top score on the EE PhD Qualifying Examination at Stanford | 2008 |
| | President of India Gold Medal at IIT Bombay for standing first in the institute | 2007 |
| | Gold Medal and second overall at the International Physics Olympiad (IPhO) | 2003 |
| | Gold Medal and second overall at the International Chemistry Olympiad (IChO) | 2003 |
| Ranked 2nd at the All India IIT Joint Entrance Examination | 2003 | |
| JOURNAL PAPERS | Y. Kanoria, D. Saban and J. Sethuraman, "The size of the core in random assignment markets," to appear in <i>Operations Research</i> . | |
| | R. Anderson, I. Ashlagi, Y. Kanoria and D. Gamarnik, "Efficient dynamic barter exchange," to appear in <i>Operations Research</i> . | |
| | I. Ashlagi, Y. Kanoria and J. Leshno, "Unbalanced random matching markets: the stark effect of competition," <i>Journal of Political Economy</i> , 125(1), Feb 2017. | |
| | M. Bayati, C. Borgs, J. Chayes, Y. Kanoria, and A. Montanari, "Bargaining dynamics in exchange networks," <i>Journal of Economic Theory</i> , Vol. 156, pp. 417454, March 2015. | |
| | M. Ibrahimi, Y. Kanoria, M. Kraning and A. Montanari, "The Set of Solutions of Random XORSAT Formulae," to appear in the <i>Annals of Applied Probability</i> , Vol. 25, No. 5, Sep 2015. | |

Y. Kanoria and A. Montanari, "Majority dynamics on trees and the dynamic cavity method," *Annals of Applied Probability*, Vol. 21, No. 5, Oct 2011.

Y. Kanoria and A. Montanari, "Optimal coding for the deletion channel with small deletion probability," *IEEE Transactions on Information Theory*, Vol. 59, No. 10, pp. 6192-6219, Oct. 2013.

Y. Kanoria and O. Tamuz, "Tractable Bayesian Social Learning," *IEEE Journal on Selected Areas in Communication*, Vol. 31, No. 4, pp. 756-765, April 2013.

WORKING PAPERS

Y. Kanoria and H. Nazerzadeh, "Dynamic Reserves For Repeated Auctions: Learning from Bids," revision at *Operations Research*.

Itai Feigenbaum, Yash Kanoria, Irene Lo and Jay Sethuraman, "Dynamic Matching in School Choice: Efficient Seat Reallocation After Late Cancellations," submitted.

R. Johari, V. Kamble, and Y. Kanoria, "Matching while Learning," submitted.

I. Ashlagi, M. Braverman, Y. Kanoria and P. Shi, "Communication Requirements and Informative Signaling in Matching Markets," submitted.

Y. Kanoria and D. Saban, "Facilitating the search for partners on matching platforms: restricting agent actions," submitted.

N. Arnosti, R. Johari and Y. Kanoria, "Managing congestion in matching markets," to be submitted.

S. Banerjee, Y. Kanoria and P. Qian (2017), "Optimal dynamic dispatch to balance supply and demand," work in progress.

Y. Kanoria, I. Lobel and J. Lu (2017), "Dynamic Decision-making under Customer Abandonment Risk," work in progress.

REFEREED
CONFERENCE
PAPERS

R. Johari, V. Kamble, and Y. Kanoria, "Matching while Learning," *ACM Conference on Economics and Computation (EC)*, 2017.

I. Ashlagi, M. Braverman, Y. Kanoria and P. Shi, "Communication Requirements and Informative Signaling in Matching Markets," *ACM Conference on Economics and Computation (EC)*, 2017.

Y. Kanoria and D. Saban, "Facilitating the search for partners on matching platforms: restricting agent actions," *ACM Conference on Economics and Computation (EC)*, 2017.

Itai Feigenbaum, Yash Kanoria, Irene Lo and Jay Sethuraman, "Dynamic Matching in School Choice: Efficient Seat Reallocation After Late Cancellations," *Workshop on Internet and Network Economics (WINE)*, 2016.

Y. Kanoria, D. Saban and J. Sethuraman, "The size of the core in random assignment markets." *ACM-SIAM Symp. on Discrete Algorithms (SODA)*, 2015.

Y. Kanoria and H. Nazerzadeh, "Dynamic Reserves For Repeated Auctions: Learning from Bids," *Workshop on Internet and Network Economics (WINE)*, 2014.

N. Arnosti, R. Johari and Y. Kanoria, "Managing search in decentralized matching markets," *ACM Conference on Economics and Computation (EC)*, 2014.

I. Ashlagi, Y. Kanoria and J. D. Leshno, "Unbalanced random matching markets," *ACM Conference on Economics and Computation (EC)*, 2013.

- Y. Kanoria and O. Tamuz, “Tractable Bayesian Social Learning on Trees,” *IEEE Intl. Symposium on Information Theory (ISIT)*, 2012.
- M. Ibrahimi, Y. Kanoria, M. Kraning and A. Montanari, “The Set of Solutions of Random XORSAT Formulae,” *ACM-SIAM Symp. on Discrete Algorithms (SODA)*, 2012.
- M. Ibrahimi, A. Javanmard, Y. Kanoria and A. Montanari, “Robust max-product belief propagation,” *Asilomar Conference on Signals, Systems and Computers*, 2011 (Invited).
- Y. Kanoria, A. Montanari, D. Tse and B. Zhang, “Distributed Storage for Intermittent Energy Sources: Control Design and Performance Limits,” *Annual Allerton Conf. on Communication, Control and Computing*, 2011.
- Y. Kanoria and A. Montanari, “Subexponential convergence for information aggregation on regular trees,” *IEEE Conf. on Decision and Control and European Control Conf. (CDC-ECC)*, 2011.
- Y. Kanoria, “A FPTAS for Bargaining Networks with Unequal Bargaining Powers,” *Workshop on Internet and Network Economics (WINE)*, 2010.
- Y. Kanoria, M. Bayati, C. Borgs, J. Chayes and A. Montanari, “Fast Convergence of Natural Bargaining Dynamics in Exchange Networks,” *ACM-SIAM Symp. on Discrete Algorithms (SODA)*, 2011.
- Y. Kanoria and A. Montanari, “On the deletion channel with small deletion probability,” *IEEE Intl. Symposium on Information Theory (ISIT)*, 2010, Student Paper Award.
- Y. Kanoria, S. Mitra and A. Montanari, “Statistical Static Timing analysis using Markov chain Monte Carlo,” *Design, Automation and Test in Europe (DATE)*, 2010.
- C. Dutta, Y. Kanoria, D. Manjunath and J. Radhakrishnan, “A Tight Lower Bound for Parity in Noisy Communication Networks,” *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 2008.
- Y. Kanoria and D. Manjunath, “On Distributed Computation in Noisy Random Planar Networks,” *IEEE Intl. Symp. on Information Theory (ISIT)*, 2007.

INDUSTRY
EXPERIENCE

- Microsoft Research New England**, Cambridge, MA Summer '10, '11, Aug '12 - Jun '13
- D.E. Shaw & Co**, Cupertino, CA Summer 2008
Worked with high speed trades group
- Goldman Sachs Group, Inc.**, Bangalore, India & New York, NY Summer 2007
Worked on limit order execution times

PROFESSIONAL
SERVICE

- Associate Editor (since Aug 2016), Operations Research.
- Meritorious Service Award, 2013, Operations Research.
- Program Committee member for the World Wide Web conference (WWW), 2013, and ACM Conference on Economics and Computation, 2016 and 2017.
- Reviewer for Management Science, Operations Research, Mathematics of Operations Research, Probability Theory and Related Fields, Random Structures and Algorithms, Stochastic Systems, Annals of Applied Probability, Economic Theory, Games and Economic Behavior, Theoretical Economics, Automatica, SIAM Journal on Discrete Mathematics, IEEE Trans. on Information Theory, IEEE Trans. on Automatic Control, ACM Transactions on Algorithms, Electronic Journal of Probability, Internet Mathematics, IEEE Trans. on Computers and IEEE Trans. on Communications.

ACM-SIAM Symp. on Economics and Computation, ACM Symp. on Theory of Computing, ACM-SIAM Symp. on Discrete Algorithms, Workshop on Internet and Network Economics, Symp. on Algorithmic Game Theory, IEEE Intl. Symp. on Information Theory, Information Theory Workshop, Performance, IEEE Conf. on Decision and Control, Intl. Conf. on VLSI design, and Intl. Workshop on Algorithms and Computation.

Co-organizer of weekly DRO-IEOR seminar at Columbia since Spring 2017.

Organizer of “Learning and market design” seminar series at Simons Institute, Fall 2015, as part of Economics and Computation program.

Organizer of “Reverse Field Trip” involving speakers from local companies on Nov 9, 2015, at Simons Institute, as part of Economics and Computation program.

TEACHING

Computing for Business Research, Fall 2013 and Fall 2014, Columbia Business School.

Business Analytics, Spring 2015, Spring 2016 and Spring 2017, Columbia Business School.

Co-taught a PhD class “Engineering online matching markets” with Jay Sethuraman in Spring 2017.

OUTSIDE ACTIVITIES

Successfully proposed new method for seat allocation in engineering colleges in India. Member of the Technical committee, responsible for the mechanism and algorithm for joint seat allocation/admissions for over 30,000 seats at 88 centrally funded engineering colleges in India including the Indian Institutes of Technology, National Institutes of Technology etc. Implemented successfully in summer 2015, and again, with further improvements suggested by me, in 2016. I continue to be involved.

Regular conversations with data scientists at Airbnb, Upwork, Uber, Lyft and other sharing economy platforms.

GRANTS

NSF CAREER Award 2017. Funding runs until 2022.

Principal Investigator, Jerome A. Chazen Institute of International Business grant entitled “Centralized seat allocation for engineering colleges in India,” 2015-16.

INVITED TALKS

Dynamic Reserves For Repeated Auctions: Learning from Bids

Market Algorithms seminar, Google, NYC Jul 2017

Algorithmic Game Theory and Data Science workshop, Cambridge, MA Jun 2017

Marketplace Innovation Workshop, Stanford, CA Jun 2017

Facilitating the search for partners on matching platforms: restricting agent actions

INFORMS Applied Probability Society Conference, Northwestern U Jul 2017

MSOM Conference, UNC Chapel Hill Jun 2017

Chicago Booth Operations Workshop May 2017

Market Design workshop, Columbia University Mar 2017

DRO Brown bag lunch, Columbia Business School Mar 2017

MIT ORC seminar Feb 2017

Networks, Matching, and Platforms workshop, Denver, CO Jan 2017

Operations Management Seminar, USC Marshall School of Business Oct 2016

Communication Requirements and Informative Signaling in Matching Markets

INFORMS Applied Probability Society Conference, Northwestern U Jul 2017

Rutgers/DIMACS theory seminar Feb 2017

INFORMS Annual Meeting, Nashville, TN Nov 2016

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| Matching while Learning | |
| INFORMS Revenue Management conference | Jun 2016 |
| DRO Brown bag lunch, Columbia Business School | Mar 2016 |
| Statistics student seminar, Columbia University | Mar 2016 |
| Competition and choice in matching markets | |
| OR seminar, Stanford Graduate School of Business | Nov 2015 |
| Matching markets: structure, dynamics and design (survey) | |
| EconCS survey seminar, Simons Institute, UC Berkeley | Oct 2015 |
| Unbalanced random matching markets | |
| Workshop on Graphical Models, Statistical Inference, & Algorithms, IMA, Minnesota | May 2015 |
| CS seminar, IIT Kharagpur, India | Jan 2015 |
| OM seminar, Rotman School of Management | Oct 2014 |
| CS-Econ seminar, Duke University | Oct 2014 |
| CS Theory seminar, Columbia University | Sep 2014 |
| OM seminar, NYU Stern School of Business | Sep 2014 |
| NYC Market design workshop, Columbia University | Dec 2013 |
| Google Algorithms seminar, Google, New York | Nov 2013 |
| IIT Bombay, Mumbai, India | Aug 2013 |
| Tata Institute of Fundamental Research, Mumbai, India | Jul 2013 |
| Stochastics and Applications seminar, MIT | Apr 2013 |
| Microsoft Research Theory Group Seminar, Redmond, WA | Mar 2013 |
| Dynamic Matching in School Choice: Efficient Seat Reallocation After Late Cancellations | |
| INFORMS Annual meeting, Philadelphia, PA | Nov 2015 |
| Managing congestion in dynamic matching markets | |
| Columbia Business School Alumni Club of the Bay Area, San Francisco | Sep 2015 |
| Econometric Society World Congress, Montreal, Canada | Aug 2015 |
| Tata Institute of Fundamental Research, Mumbai, India | Jul 2015 |
| INFORMS Applied Probability Society Conference, Istanbul, Turkey | Jul 2015 |
| NYCE (NY Computer Science and Economics) Day | Dec 2014 |
| Theory seminar, USC Economics | Nov 2014 |
| Bray Theory Workshop, Caltech HSS | Nov 2014 |
| Efficient dynamic barter exchange | |
| Market design seminar, Stanford Economics | Dec 2015 |
| MSOM Conference, U Washington, Seattle | Jun 2014 |
| Columbia Statistics student seminar | Nov 2013 |
| Probability seminar, University of Chicago | Nov 2013 |
| INFORMS Annual Meeting | Oct 2013 |
| Workshop on Asymptotics of Large Scale Networks, BIRS, Banff, Canada | Mar 2013 |
| An internet experiment on bargaining | |
| INFORMS Annual meeting, Phoenix, AZ | Oct 2012 |
| Workshop on Computational & Applied Social Science, New York | Oct 2012 |
| POMS Annual conference | Apr 2012 |

The set of solutions of random XORSAT formulae

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| Probability seminar, Brown University | Feb 2013 |
| Stanford probability seminar | Oct 2012 |
| MIT probability seminar | Sep 2012 |

Bargaining dynamics in exchange networks

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| ECE seminar, UCSD | Mar 2012 |
| ECE seminar, Cornell | Mar 2012 |
| EE seminar, UIUC | Feb 2012 |
| ELE/Applied Math seminar, Princeton | Feb 2012 |
| ORIE, Cornell | Feb 2012 |
| DRO seminar, Columbia GSB | Jan 2012 |
| MSR Redmond | Jan 2012 |
| MSR New England | Jan 2012 |
| OR seminar, MIT Sloan | Jan 2012 |
| NCD seminar, EECS, UC Berkeley | Jan 2012 |
| Microsoft Research India | Jan 2012 |
| ECE, University of Maryland | Nov 2011 |
| Markets & Social Systems Engineering seminar, UPenn | Nov 2011 |
| INFORMS Annual meeting, Charlotte, NC | Nov 2011 |
| IEOR seminar, IIT Bombay, India | Jan 2011 |
| Econ-CS seminar, UC Berkeley | Apr 2010 |
| Algorithms and Complexity seminar, MIT | Mar 2010 |
| CS Theory Lunch, Stanford | Jan 2010 |

Distributed storage for intermittent energy sources

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| INFORMS Annual meeting, Phoenix, AZ | Oct 2012 |
| Information, Decisions and Algorithms meeting, Stanford | Oct 2011 |
| Allerton conference, UIUC | Sep 2011 |

Social learning and the dynamic cavity method

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| INFORMS Applied Probability Society meeting, Stockholm, Sweden | Jul 2011 |
| Research on Algorithms for the Internet (RAIN) seminar, Stanford | Feb 2011 |
| Workshop on Recent Trends in Social Networks, TIFR, Mumbai, India | Jan 2011 |
| Theory lunch, Microsoft Research Redmond, Redmond, WA | Dec 2010 |
| Microsoft Research New England Colloquium, Cambridge, MA | Nov 2010 |

Majority dynamics on trees and the dynamic cavity method

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| Dept. of Electrical Engineering, IIT Bombay, India | Jun 2009 |
| Tata Institute of Fundamental Research, Mumbai, India | Jun 2008 |
| Workshop on Message Passing, Phase Transitions and Hard Combinatorial Problems, BIRS, Banff, Canada | Jun 2008 |