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Education

Ph.D., Business Economics, Harvard University (2011).

Dissertation: “Matching Models of Markets.”

Advisors: A. E. Roth, S. Athey, D. Fudenberg, J. W. Hatfield, A. Shleifer, and E. G. Weyl.

A.M., Business Economics, Harvard University (2010).

A.B., Mathematics, Harvard University, *summa cum laude* (2009).

Minor: Ethnomusicology.

Thesis: “Weighted Generating Functions and Configuration Results for Type II Lattices and Codes.”

Advisor: N. D. Elkies.

Principal Academic Appointments

Associate Professor, Entrepreneurial Management Unit, Harvard Business School (2017–present).

Visiting Scholar (2014–2017); *Lecturer* (2016).

Faculty Affiliate, Department of Economics, Harvard University (2017–present).

Associated Scholar (2013–2017); *Lecturer* (2015).

Junior Fellow, Society of Fellows, Harvard University (2013–2017).

Research Scholar, Becker Friedman Institute, University of Chicago (2011–2013).

Secondary Appointments

Affiliate, Center of Mathematical Sciences and Applications, Harvard University (2015–present).

Associate, Center for Research on Computation and Society, Harvard University (2013–present).

Research Economist, National Bureau of Economic Research (2015–present).

Research Scientist, Program for Evolutionary Dynamics, Harvard University (2013–2016).

Guest Researcher (2012–2013).

Visiting Positions

Visiting Fellow, Oxford Martin School (Spring 2016).

Visiting Researcher, Microsoft Research New England (2014–2015).

Other Employment

Social Science Analyst, Economic Analysis Group, US Department of Justice (Summer 2010).

Operations Research Engineering Intern, Google (Summer 2007).

Research Assistant to Susan Athey, Edward L. Glaeser, William R. Kerr, and Andrei Shleifer, Harvard University (2007–2009).

Academic Activities

Leadership

- *Co-Leader*, Human Capital and Economic Opportunity “Inequality: Measurement, Interpretation, and Policy” Working Group [MIP] (2012–present).
 - *Co-Organizer*, Meeting on Market Design Perspectives on Inequality (2016).
 - *Co-Organizer*, Summer School on Socioeconomic Inequality (2015–2016; 2013).
- *Co-Leader*, Human Capital and Economic Opportunity “Measuring and Interpreting Inequality” Working Group [MIE] (2011–2012).
 - *Co-Organizer*, Meeting on Intergenerational Mobility (2012).
 - *Lead Organizer*, Inaugural Meeting (2012).

Organizational

- *Workshops Co-Chair*, “ACM Conference on Economics and Computation [EC]” (2018–2019).
 - *Senior Program Committee Member* (2017; 2014–2015); *Program Committee Member* (2012–2013).
- *Planning Group Member*, “First Japanese-American-German Frontiers of Science [JAGFoS] Symposium,” Alexander von Humboldt Foundation, Japan Society for the Promotion of Science, and National Academy of Sciences (2017).
- *Steering Committee Member*, “Conference on Auctions, Market Mechanisms and Their Applications [AMMA]” (2016–present).
 - *Co-Chair* (2015); *Program Committee Member* (2011).
- *Co-Organizer*, “Conference on Big Data,” Harvard Center of Mathematical Sciences and Applications (2015–2017).
- *Program Committee Member*, “Workshop on the Economics of Networks, Systems and Computation [NetEcon]” (2017).
- *Co-Chair*, “Fourth International Workshop on Matching Under Preferences [MATCH-UP]” (2017).
- *Co-Organizer*, “Predictive Cities” exploratory seminar, Radcliffe Institute for Advanced Study (2016).
- *Co-Organizer*, American Economic Association Meetings sessions:
 - “Matching without Substitutes: Theory and Applications” (*Papers & Proceedings*, 2017);
 - “Market Design and Development Economics” (2017);
 - “Market Design: Theory and Practice” (2017);
 - “Predictive Cities” (*Papers & Proceedings*, 2016);
 - “Patent Economics” (2015);
 - “Frontiers of Market Design” (*Papers & Proceedings*, 2014);
 - “Whither Affirmative Action?” (2013);
 - “New Challenges for Market Design” (*Papers & Proceedings*, 2012);
 - “Price Theory and Market Design” (2012);
 - “Frontiers of Matching Theory” (2011).
- *Program Committee Member*, “Workshop on Social and Information Networks” (2015).
- *Program Committee Member*, “International World Wide Web Conference [WWW]” (2015).
- *Co-Organizer*, “CRCS Seminar,” Center for Research on Computation and Society [CRCS], Harvard University (2014–2015).
- *Co-Organizer*, “Midway Market Design Workshop [MDW MDW],” Becker Friedman Institute for Research in Economics, University of Chicago (2014).
- *Co-Organizer*, “25th Jerusalem School in Economic Theory: Matching and Market Design” (2014).
- *Program Committee Member*, “12th Meeting of Society for Social Choice and Welfare” (2014).
- *Program Committee Member*, “Symposium on Algorithmic Game Theory [SAGT]” (2014).
- *Co-Organizer*, “Taxation and Matching” workshop, Department of Economics, Sciences Po (2014).

- *Program Committee Member*, “Conference on Web and Internet Economics [WINE]” (2013).
- *Organizer*, “Workshop in Economic Theory,” Department of Economics, University of Chicago (Fall 2012; Fall 2011).
- *Co-Organizer*, “Matching Theory: Economics meets Mathematics” conference, Becker Friedman Institute for Research in Economics and Stevanovich Center for Financial Mathematics, University of Chicago (2012).
- *Organizational Chair*, “Matching and Price Theory” conference, Milton Friedman Institute for Research in Economics, University of Chicago (2011).

University Committee Service

- *Member*, University Subcommittee on the Degree of Doctor of Philosophy in Business Economics, Harvard University (2017–present).
- *Member*, Departmental Committee on the Undergraduate Concentration in Applied Mathematics – Economics Track, Department of Economics, Harvard University (2017–present).

Other Professional Service

- *Selection Committee Member*, Joseph Lieberman Award for Significant Contribution to Science and Technology (2017; 2015; 2013).
- *Head Tutor*, Harvard Program for Research in Markets and Organizations [PRIMO] (2011).
- *Non-Resident Tutor*, Kirkland House, Harvard University (2009–2011).
- *Paper Reviewer*, Research Science Institute, MIT (2005–2011).
- *Program Assistant*, Harvard College Program for Research in Science and Engineering [PRISE] (2008).

Teaching

Graduate

- *Market Design* (Graduate Seminar)
 - Department of Economics, Harvard University (Fall 2017; Fall 2015).
- *Topics in Matching and Market Design* (Graduate Seminar)
 - Department of Economics, University of Chicago (Spring 2013; Winter 2012).
- *Market Design Perspectives on Inequality* (Graduate Mini-Course)
 - Chicago Summer School on Socioeconomic Inequality (Summer 2016–2017).
- *Market Design Approaches to Inequality* (Graduate Mini-Course)
 - Chicago Summer School on Socioeconomic Inequality (Summer 2015; Summer 2012–2013).
 - Beijing Summer School on Socioeconomic Inequality (Summer 2013).
- *Matching Theory, Substitutability, and Generalized Matching* (Graduate Mini-Course)
 - Hebrew University Summer School in Economic Theory (Summer 2014).
- *Recent Advances in Generalized Matching Theory* (Tutorial, with John William Hatfield)
 - “Matching Problems: Economics meets Mathematics” conference (June 4, 2012).

MBA

- *Making Markets* (MBA Course, with Thomas R. Eisenmann)
 - Harvard Business School (Spring 2018).
- *The Entrepreneurial Manager* (MBA Course)
 - Harvard Business School (Spring 2016).
- *Online Marketing at Big Skinny* (Case Session)
 - The Online Economy – Strategy and Entrepreneurship, Harvard Business School (September 20, 2011; September 28, 2010).

Grants and Fellowships

Star Family Challenge for Promising Scientific Research Grant: “Computer Vision-Automated Surveys for Urban Science and Economic Development” (with Edward L. Glaeser, Rema Hanna, Benjamin Olken, and Nikhil Naik, 2016–2017).

Radcliffe Exploratory Seminar Grant: “Predictive Cities: Leveraging New Data and Methods to Improve Urban Quality of Life” (with Edward L. Glaeser, Michael Luca, and Mitchell B. Weiss, 2016–2017).

NSF Science of Science and Innovation Policy [SciSIP] Grant: “Assessing the Impact of Non-Practicing Entities on U.S. Innovation” (with Lauren Cohen and Umit G. Gurun, 2015–present).

NSF Social and Economic Sciences [SES] Grant: “Preferences in Matching Market Design” (2015–present).

Sloan Foundation Conference Grant: “Conference on Big Data” (with Shing-Tung Yau, Richard Freeman, Jun Liu, Christopher Rogan, and Horng-Tzer Yau, 2016).

Oxford Martin School Visiting Fellowship (2016).

International Growth Centre [IGC] Small Projects Grant (with Edward L. Glaeser, Rema Hanna, Benjamin Olken, and Nikhil Naik, 2015–2016).

NSF Interface between Computer Science and Economics & Social Sciences [ICES] Grant: “Understanding the Roles of Intermediaries in Matching Markets” (with Eric Budish, Ali Hortaçsu, and Nicole Immorlica, 2012–2016).

William F. Milton Fund Grant (2014–2015).

Econometric Society Travel Grant (2015).

AMS–Simons Travel Grant (2011–2014).

Human Capital and Economic Opportunity/Institute for New Economic Thinking Research Grant (with Jay Garlapati, 2012–2013).

NSF Graduate Research Fellowship (2009–2011).

Terence M. Considine Fellowship in Law and Economics (2010–2011).

Yahoo! Key Scientific Challenges Program Fellowship (2010–2011).

Harvard Real Estate Academic Initiative Faculty Grant (with E. Glen Weyl, 2009–2011).

Harvard Institute for Quantitative Social Science Travel Grant (2010).

Danielan Fund Research and Travel Grant (2010).

National Defense Science and Engineering Graduate Fellowship (declined, 2009).

Harvard Institute for Quantitative Social Science Summer Scholars Program Fellowship (2008).

Harvard College Program for Research in Science and Engineering Fellowship (2008).

Harvard Mathematics Department Highbridge Fellowship (2008).

Harvard College Program for Research in Science and Engineering Fellowship (2006).

Center for Excellence in Education Research Science Institute Summer Scholarship (2004).

Awards and Honors

Star Family Prize for Excellence in Advising (Winner, 2016; Nominee, 2014).

Derek Bok Center Certificate of Distinction in Teaching (2016).

Kavli Frontiers of Science Fellow (2015).

Case Centre Award (with Benjamin Edelman, Knowledge, Information and Communication Systems Management Category, 2015).

Nominee, John R. Marquand Award for Exceptional Advising and Counseling (2014).

Center for Excellence in Education Alumni Award for Outstanding Achievement in STEM and Business (2013).

Third Place, Romanian Institute of Science and Technology “Best PhD Thesis in Computational Game Theory” Competition (2011).

Yahoo! Key Scientific Challenges Program Selectee (2010).

St. Mark’s Institute of Mathematics Great Math Challenge Award (with Paul M. Kominers, 2010).

AMS-MAA-SIAM Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student (2010).

George Caspar Homans Prize (2009).

Thomas Temple Hoopes Prize (2009).

Phi Beta Kappa (2009).

First Place, Robert Fletcher Rogers Prize (2008).

John Harvard Scholarship (2007–2008).

First Place, American Mathematical Society Karl Menger Prize (2005).

Second Place, Mathematics Category, Intel International Science and Engineering Fair (2005).

California Institute of Technology Signature Award in Mathematics (2004).

Publications

Economics Research Papers

- “Reserve Design: Unintended Consequences and The Demise of Boston’s Walk Zones” (with Umut Dur, Parag A. Pathak, and Tayfun Sönmez), forthcoming, *Journal of Political Economy*.
- “Computer Vision Uncovers Predictors of Physical Urban Change” (with Nikhil Naik, Ramesh Raskar, Edward L. Glaeser, and César A. Hidalgo), forthcoming, *Proceedings of the National Academy of Sciences*.
- “‘Troll’ Check: A Proposal for Administrative Review of Patent Litigation” (with Lauren Cohen, John M. Golden, and Umit G. Gurun), forthcoming, *Boston University Law Review*.
- “Stable and Strategy-Proof Matching with Flexible Allotments” (with John William Hatfield and Alexander Westkamp), *American Economic Review Papers & Proceedings* 107(5), (2017): 214–219.
- “Contract Design and Stability in Many-to-Many Matching” (with John William Hatfield), *Games and Economic Behavior [Special Issue in Honor of John O. Ledyard]*, 101, (2017): 78–97.
- “Matching with Slot-Specific Priorities: Theory” (with Tayfun Sönmez), *Theoretical Economics*, 11(2), (2016): 683–710. (Extended abstract, *Proceedings of the 14th ACM Conference on Electronic Commerce [EC’13]*, (2013): 603–604.)
- “Crowdsourcing City Government: Using Tournaments to Improve Inspection Accuracy” (with Edward L. Glaeser, Andrew Hillis, and Michael Luca), *American Economic Review Papers & Proceedings*, 106(5), (2016): 114–118.
- “The Growing Problem of Patent Trolling” (with Lauren Cohen and Umit G. Gurun), *Science*, 352(6285), (2016): 522–523.
- “Agglomerative Forces and Cluster Shapes” (with William R. Kerr), *Review of Economics and Statistics*, 97(4), (2015): 877–899.

- “Design and Implementation of a Privacy Preserving Electronic Health Record Linkage Tool in Chicago” (with Abel N. Kho, John P. Cashy, Kathryn L. Jackson, Adam R. Pah, Satyender Goel, Jörn Boehnke, John Eric Humphries, Bala N. Hota, Shannon A. Sims, Brad A. Malin, Dustin D. French, Theresa L. Walunas, David O. Meltzer, Erin O. Kaleba, Roderick C. Jones, and William L. Galanter), *Journal of the American Medical Informatics Association*, 22(5), (2015): 1072–1080.
- “Multilateral Matching” (with John William Hatfield), *Journal of Economic Theory [Special Issue on the Interface between Computer Science and Economic Theory]*, 156, (2015): 175–206. (Extended abstract, *Proceedings of the 12th ACM Conference on Electronic Commerce [EC’11]*, (2011): 337–338.)
- “Investment Incentives in Labor Market Matching” (with John William Hatfield and Fuhito Kojima), *American Economic Review Papers & Proceedings*, 104(5), (2014): 436–441.
- “Delayed-Response Strategies in Repeated Games with Observation Lags” (with Drew Fudenberg and Yuhta Ishii), *Journal of Economic Theory*, 150, (2014): 487–514.
- “Stability and Competitive Equilibrium in Trading Networks” (with John William Hatfield, Alexandru Nichifor, Michael Ostrovsky, and Alexander Westkamp), *Journal of Political Economy*, 121(5), (2013): 966–1005.
- “On Derivatives Markets and Social Welfare: A Theory of Empty Voting and Hidden Ownership” (with Jordan M. Barry and John William Hatfield), *Virginia Law Review*, 99(6), (2013): 1103–1168.
- “On the Correspondence of Contracts to Salaries in (Many-to-Many) Matching,” *Games and Economic Behavior*, 75(2), (2012): 984–989.
- “Testing Substitutability” (with John William Hatfield and Nicole Immorlica), *Games and Economic Behavior*, 75(2), (2012): 639–645.
- “Matching in Networks with Bilateral Contracts” (with John William Hatfield), *American Economic Journal: Microeconomics*, 4(1), (2012): 176–208. (Extended abstract, *Proceedings of the 11th ACM Conference on Electronic Commerce [EC’10]*, (2010): 119–120.)
- “Matching with Preferences over Colleagues Solves Classical Matching,” *Games and Economic Behavior*, 68(2), (2010): 773–780.

Economics Short Articles and Conference Papers

- “Patent Trolling Isn’t Dead — It’s Just Moving to Delaware” (with Lauren Cohen and Umit G. Gurun), *Harvard Business Review [Online]*, (June 28, 2017).
- “Who Will Vote Quadratically? Voter Turnout and Votes Cast Under Quadratic Voting” (with Louis Kaplow), *Public Choice [Special Issue on Quadratic Voting and the Public Good]*, 172(1–2), (2017): 125–149.
- “To Groupon or Not to Groupon: The Profitability of Deep Discounts” (with Benjamin Edelman and Sonia Jaffe), *Marketing Letters*, 27(1), (2016): 39–53.
- “Convergence of Position Auctions under Myopic Best-Response Dynamics” (with Matthew Cary, Aparna Das, Benjamin Edelman, Ioannis Giotis, Kurtis Heimerl, Anna Karlin, Claire Mathieu, and Michael Schwarz), *ACM Transactions on Economics and Computation*, 2(3), (2014): #9.
- “Vacancies in Supply Chain Networks” (with John William Hatfield), *Economics Letters*, 119(3), (2013): 354–357.
- “Holdout in the Assembly of Complements: A Problem for Market Design” (with E. Glen Weyl), *American Economic Review Papers & Proceedings*, 102(3), (2012): 360–365.
- “Discrete Choice Cannot Generate Demand that is Additively Separable in Own Price” (with Sonia Jaffe), *Economics Letters*, 116(1), (2012): 129–132.
- “Course Allocation by Proxy Auction” (with Mike Ruberry and Jonathan Ullman), *Proceedings of the 6th Workshop on Internet & Network Economics (WINE)*, (2010): 551–558.

- “Information Can Wreck Cooperation: A Counterpoint to Kandori (1992)” (with Yuichiro Kamada), *Economics Letters*, 107(2), (2010): 112–114.

Mathematics Research Papers

- “Asymptotic Improvements of Lower Bounds for the Least Common Multiples of Arithmetic Progressions” (with Daniel M. Kane), *Canadian Mathematical Bulletin*, 57(3), (2014): 551–561.
- “Minimal \mathcal{S} -Universality Criteria May Vary in Size” (with Noam D. Elkies and Daniel M. Kane), *Journal de Théorie des Nombres de Bordeaux*, 23(3), (2013): 557–563.
- “Weighted Generating Functions for Type II Lattices and Codes” (with Noam D. Elkies), *Quadratic and Higher Degree Forms* (ed. Krishnaswami Alladi, Manjul Bhargava, David Savitt, and Pham Huu Tiep), *Developments in Mathematics*, 31, Springer, (2013): 63–108.
- “Hinged Dissections Exist” (with Timothy G. Abbott, Zachary Abel, David Charlton, Erik D. Demaine, and Martin L. Demaine), *Discrete & Computational Geometry*, 47(1), (2012): 150–186. (Conference paper, *Proceedings of the Twenty-fourth Annual Symposium on Computational Geometry [SoCG’08]*, (2008): 110–119.)
- “Every Large Point Set contains Many Collinear Points or an Empty Pentagon” (with Zachary Abel, Brad Ballinger, Prosenjit Bose, Sébastien Collette, Vida Dujmović, Ferran Hurtado, Stefan Langerman, Attila Pór, and David R. Wood), *Graphs and Combinatorics*, 27(1), (2011): 47–60. (Extended abstract, *Proceedings of the 21st Canadian Conference on Computational Geometry [CCCG’09]*, (2009).)
- “A Categorical Construction of Ultrafilters” (with Daniel Litt and Zachary Abel), *Rocky Mountain Journal of Mathematics*, 40(5), (2010): 1611–1617.
- “A Constant Bound for the Periods of Parallel Chip-firing Games with Many Chips” (with Paul M. Kominers), *Archiv der Mathematik*, 95(1), (2010): 9–13. [Recognized in the St. Mark’s Institute of Mathematics Great Math Challenge.]
- “On Congruence Conditions for Primality” (with Sherry Gong), *INTEGERS: The Electronic Journal of Combinatorial Number Theory*, 10(3), (2010): 313–317.
- “Irrational Roots Revisited,” *The Mathematical Gazette*, 94(530), (2010): 28.
- “On the Classification of Type II Codes of Length 24” (with Noam D. Elkies), *SIAM Journal on Discrete Mathematics*, 23(4), (2010): 2173–2177.
- “Further Improvements of Lower Bounds for the Least Common Multiples of Arithmetic Progressions” (with Shaofang Hong), *Proceedings of the American Mathematical Society*, 138(3), (2010): 809–813.
- “Improved Bounds on the Sizes of S-P Numbers” (with Paul M. Kominers), *The Mathematical Gazette*, 94(529), (2010): 127–129.
- “Shape Replication Through Self-Assembly and RNase Enzymes” (with Zachary Abel, Nadia Benbernou, Mirela Damian, Erik D. Demaine, Robin Flatland, Robert Schweller, and Martin L. Demaine), *Proceedings of the 2010 ACM-SIAM Symposium on Discrete Algorithms [SODA’10]*, (2010): 1045–1064.
- “Refined Configuration Results for Extremal Type II Lattices of Ranks 40 and 80” (with Noam D. Elkies), *Proceedings of the American Mathematical Society*, 138(1), (2010): 105–108.
- “Configurations of Extremal Even Unimodular Lattices,” *International Journal of Number Theory*, 5(3), (2009): 457–464.
- “On Universal Binary Hermitian Forms,” *INTEGERS: The Electronic Journal of Combinatorial Number Theory*, 9, (2009): 9–15.
- “Configurations of Rank- $40r$ Extremal Even Unimodular Lattices ($r = 1, 2, 3$)” (with Zachary Abel), *Journal de Théorie des Nombres de Bordeaux*, 20(2), (2008): 365–371.
- “Uniqueness of the 2-universality Criterion,” *Note di Matematica*, 28(2), (2008): 203–206.

Musicology Research Papers

- “Leonard Bernstein’s Doodles: Reading Outside the Lines at the Library of Congress,” *Journal of the Society for American Music*, 3(1), (2009): 26–33. (As an appendix to “Leonard Bernstein’s Jewish Boston: Cross-Disciplinary Research in the Classroom” by Carol J. Oja and Kay Kaufman Shelemay.)
- “Leonard Bernstein doodled regularly,” In: *Bernstein and Boston: A Documentary Scrapbook* (ed. Emily Abrams Ansari), (2006).

Medicine Research Papers

- “Patterns of failure after involved field radiation therapy for pediatric and young adult Hodgkin lymphoma” (with Minh-Phuong Huynh-Le, Amanda J. Walker, Ido Paz-Priel, Moody D. Wharam, and Stephanie A. Terezakis), *Pediatric Blood & Cancer*, 61(7), (2014): 1210–1214.

Books

- *Success with Science: The Winners’ Guide to High School Research* (with Shiv Gaglani, Maria Elena De Obaldia, Dayan Li, and Carol Y. Suh), Research Corporation for Science Advancement, (2011).

Expository Articles and Notes (selected)

- “Empirical Evidence on the Behavior and Impact of Patent Trolls: A Survey” (with Lauren Cohen and Umit G. Gurun), forthcoming, *Patent Assertion Entities and Competition Policy* (ed. D. Daniel Sokol), Cambridge University Press.
- “Big Data and Big Cities: The Promises and Limitations of Improved Measures of Urban Life” (with Edward L. Glaeser, Michael Luca, and Nikhil Naik), forthcoming, *Economic Inquiry [Kavli HUMAN Project Symposium Issue]*.
- “Stability and Competitive Equilibrium in Matching Markets with Transfers” (with John William Hatfield), *ACM SIGecom Exchanges*, 10(3), (2011): 29–34.
- “Sharing the fun of research,” *Harvard University Gazette*, (October 27, 2011).
- “Finding Matrices Which Satisfy Functional Equations,” *College Mathematics Journal*, 40(4), (2009): 289–292.
- “Endpaper: Math Has This Funny Property” (with Zachary Abel), *The Harvard College Mathematics Review*, 2(1), (2008): 101.
- “Mathematical Minutiae: i Has This Funny Property” (with Zachary Abel), *The Harvard College Mathematics Review*, 2(1), (2008): 75–77.
- “The Harvard College Mathematics Review: A New Undergraduate Expository Journal” (with Daniel Litt), *Math Horizons*, 15(4), (2008): 30–31.

Business Writing (selected)

- “Why Obama Just Wrote Articles in 3 Academic Journals,” *Bloomberg View*, (January 22, 2017).
- “Prediction Markets Didn’t Call Trump’s Win, Either,” *Bloomberg View*, (November 15, 2016).
- “Apple Has Designs on Stifling Innovation,” *Bloomberg View*, (October 24, 2016).
- “How U.S. laws protecting America’s best ideas are killing innovation” (with Lauren Cohen and Umit G. Gurun). *Fortune [Blog]*, (January 22, 2015).
- “The High School Senior’s Dilemma: Where Should I Go to College?” (with Michael Luca and Jonathan Smith), *Forbes [Blog]*, (April 22, 2014).
- “Lessons from the GoDaddy Customer Revolt” (with Paul Kominers), *Harvard Business Review [Blog]*, (December 29, 2011).
- “Digital Pioneers on Paper,” *Harvard Business Review [Blog]*, (July 11, 2011).
- “To Groupon or Not To Groupon: New Research on Voucher Profitability” (with Benjamin Edelman and Sonia Jaffe), *Harvard Business Review [Blog]*, (January 12, 2011).

Teaching Materials

- “Online Marketing at Big Skinny” (with Benjamin Edelman), Harvard Business School Case N9-911-033 and Teaching Note N9-911-034, (2011) [awarded a Case Centre Award].

Comments and Letters (selected)

- “Enhancing Patent Quality: Screening out Low-Quality Patents and Trolling Litigation,” public comment, (2015).
- “Collective decisions on land” (with E. Glen Weyl), *The Economist*, (May 30, 2015).
- “Paying for Tissue: Net Benefits” (with Gary S. Becker), *Science*, 337(6100), (2012): 1292–1293.
- “Professional-School Training Is Invaluable, Even for Scholars,” *The Chronicle of Higher Education*, (February 14, 2012).
- “Re: Advance Notice of Proposed Rulemaking: Human Subjects Research Protections: Enhancing Protections for Research Subjects and Reducing Burden, Delay, and Ambiguity for Investigators, Docket ID number HHS-OPHS-2011-0005” (with Salil Vadhan, David Abrams, Micah Altman, Cynthia Dwork, Paul Kominers, Harry R. Lewis, Tal Moran, Guy Rothblum, and Jonathan Ullman), public comment, (2011).
- “Comment on the NRMP’s ‘Supplemental Offer and Acceptance Program’ Proposed to Replace the Post-Match Scramble” (with Peter A. Coles, Clayton R. Featherstone, John William Hatfield, Fuhito Kojima, Muriel Niederle, Parag A. Pathak, and Alvin E. Roth), public comment, (2010).
- “A correspondence note on Myerson’s ‘Irrationality via Well-ordering’,” *Gazette of the Australian Mathematical Society*, 36(1), (2009): 53.

Workshop Papers

- “Fractal Flipbooks” (with Andrea Hawksley), *Proceedings of Bridges 2016: Mathematics, Music, Art, Architecture, Education, Culture*, (2016): 615–620.
- “Flipbook Polyhedra” (with Andrea Hawksley), *Proceedings of Bridges 2013: Mathematics, Music, Art, Architecture, Culture*, (2013): 619–624.

Refereed Problems and Solutions

- *Pi Mu Epsilon Journal*: Centennial Problem 1993 (2013); Problem 1213 (with Paul M. Kominers, 2009); Problem 1192 (2008); Solutions to problems 1175 (with Paul M. Kominers, 2008) and 1176 (with Paul M. Kominers, 2008).
- *American Invitational Mathematics Exam (AIME)*: Problem II-10 (2010); Problem II-7 (2009).
- *College Mathematics Journal*: Problem 908 (2009).
- *Mathematics Magazine*: Problem Q987 (2009).
- *The Harvard College Mathematics Review*: Problems S08-2 (with Paul M. Kominers and Justin Chen, 2008), F07-5 (with Paul M. Kominers and Zachary Abel, 2007), F07-2 (with John Hawksley, 2007) and S07-2 (2007).
- *Alfred R. Schmidt Freshman Mathematics Competition*: Exams 22 (with John Rickert, 2010), 20 (with John Rickert and Paul M. Kominers, 2008), 19 (with John Rickert and Paul M. Kominers, 2007) and 17 (with John Rickert, 2005).
- *USA Mathematical Talent Search*: Problem 3/2/18 (2006).

Working Papers (selected)

Economics

- “Strategy-Proofness, Investment Efficiency, and Marginal Returns: An Equivalence” (with John William Hatfield and Fuhito Kojima).
- “Collusion in Markets with Syndication” (with John William Hatfield and Richard Lowery).

- “Hidden Substitutes” (with John William Hatfield).
- “Patent Trolls: Evidence from Targeted Firms” (with Lauren Cohen and Umit G. Gurun).
- “Shielded Innovation” (with Lauren Cohen and Umit G. Gurun).
- “Strategy-Proofness of Worker-Optimal Matching with Continuously Transferable Utility” (with Ravi Jagadeesan and Ross Rheingans-Yoo).
- “An Elementary Proof of the Lone Wolf Theorem” (with Andrei Ciupan and John William Hatfield).
- “Refugee Resettlement” (with David Delacrétaz and Alexander Teytelboym).
- “Stability, Strategy-Proofness, and Cumulative Offer Mechanisms” (with John William Hatfield and Alexander Westkamp).
- “Full Substitutability” (with John William Hatfield, Alexandru Nichifor, Michael Ostrovsky, and Alexander Westkamp).
- “Chain Stability in Trading Networks” (with John William Hatfield, Alexandru Nichifor, Michael Ostrovsky, and Alexander Westkamp).
- “An Empirical Framework for Matching with Imperfectly Transferable Utility” (with Alfred Galichon and Simon Weber).
- “Matching Markets with Taxation of Transfers” (with Sonia Jaffe).
- “Matching with Slot-Specific Priorities: Applications” (with Tayfun Sönmez).
- “A Theory of Intergenerational Mobility” (with Gary S. Becker, Kevin M. Murphy, and Jörg L. Spenkuch).
- “Paying (for) Attention: The Impact of Information Processing Costs on Bayesian Inference” (with Xiaosheng Mu and Alexander Peysakhovich).
- “Shareholder Decisionmaking in the Presence of Empty Voting and Hidden Ownership” (with Jordan Barry and John William Hatfield).
- “Coasian Keep-Away: Voluntary Transaction Costs” (with Jordan Barry and John William Hatfield).
- “Concordance among Holdouts” (with E. Glen Weyl).

Mathematics

- “Configurations of Extremal Type II Codes” (with Noam D. Elkies).
- “Universal Reconfiguration of (Hyper-)cubic Robots” (with Zachary Abel).

Presentations

Research Lectures

- “Collusion in Markets with Syndication”
Harvard/MIT Economic Theory Workshop (April 27, 2017).
- “Strategy-Proofness, Investment Efficiency, and Marginal Returns: An Equivalence”
University of Melbourne Economic Theory and Experiments Seminar (April 7, 2017); Pennsylvania State University Micro Theory Seminar (March 31, 2017); University of Cologne Research Seminar of the DFG-Research Unit Design and Behavior (May 31, 2016); University of Texas at Austin Economic Theory Workshop (April 29, 2016); Nuffield College Economic Theory Lunchtime Workshop (January 19, 2016); Harvard/MIT Economic Theory Workshop (December 10, 2015); Brown University Economic Theory Seminar (November 16, 2015); Helsinki Center of Economic Research [HECER] Department Seminar (October 9, 2015); World Congress of the Econometric Society (August 21, 2015); Invited Talk, Meeting of COST Action IC1205 on Computational Social Choice (April 14, 2015); Becker Friedman Institute Celebration of the Life and Work of Gary S. Becker (October 30, 2014); 12th Meeting of the Society for Social Choice and Welfare (June 18, 2014); 15th ACM Conference on Electronic Commerce [EC’14] (June 12, 2014); University of Chicago Special Workshop (January 24, 2014); “Frontiers of Market Design” session, AEA Meetings (January 5, 2014); Stanford University Game Theory and Computation Seminar (October 24, 2013).

- “Titling in Informal Settlements”
 - “Market Design and Development Economics” session, AEA Meetings (January 6, 2017).
- “‘Troll’ Check: A Proposal for Administrative Review of Patent Litigation”
 - “Market Design: Theory and Practice” session, AEA Meetings (January 6, 2017).
- “Hidden Substitutes”
 - CIREQ Montreal Microeconomic Theory Conference (November 19, 2016); NBER Market Design Working Group Meeting (October 28, 2016); 16th ACM Conference on Electronic Commerce [EC’15] (June 16, 2015); Yale University Microeconomic Theory Lunch (April 28, 2015).
- “Patent Trolls: Evidence from Targeted Firms”
 - Facebook, Inc. Research Seminar (October 27, 2016); Robert F. Lanzillotti Public Policy Research Center and University of Florida Conference on The Economics of Innovation (May 20, 2016); Harvard Center of Mathematical Sciences and Applications Social Science Applications Forum (February 29, 2015); United States Patent and Trademark Office Research Seminar (March 17, 2015); MIT Applied Microeconomics Seminar (March 2, 2015); George Washington University Law School and the United States Patent and Trademark Office “Works in Progress Intellectual Property Colloquium [WIPIP]” (February 7, 2015); “Entrepreneurial Finance” session, AEA Meetings (January 4, 2015); Harvard Law, Economics, and Organizations Workshop (November 24, 2014); University of Chicago Booth School of Business Applied Economics Workshop (November 5, 2014); NBER Summer Institute Workshop on Innovation (July 16, 2014).
- “Crowdsourcing City Government: Using Tournaments to Improve Inspection Accuracy”
 - “Predictive Cities” session, AEA Meetings (January 5, 2016).
- “Full Substitutability”
 - “Advances in Matching Theory” session, AEA Meetings (January 4, 2016); NBER Market Design Working Group Meeting (October 23, 2015); 16th ACM Conference on Electronic Commerce [EC’15] (June 16, 2015); 3rd International Workshop on Matching Under Preferences [MATCH-UP] (April 16, 2015).
- “The Coase Theorem and Voluntary Transaction Costs”
 - Amsterdam Center for Law & Economics (October 20, 2014); Centre de Recherches en Economie et Droit (October 16, 2014).
- “Stability and Competitive Equilibrium in Trading Networks”
 - University of Pennsylvania Computer Science Theory Seminar (April 25, 2014); Stanford Graduate School of Business Economics Seminar (October 19, 2011); University of Wisconsin–Madison Economic Theory Workshop (September 30, 2011); Milton Friedman Institute “Matching and Price Theory” conference (May 6, 2011); “Frontiers of Matching Theory” session, AEA Meetings (January 7, 2011).
- “Matching Markets with Taxation of Transfers”
 - Sciences Po “Taxation and Matching” workshop (March 21, 2014).
- “The Demise of Walk Zones in Boston: Priorities vs. Precedence in School Choice”
 - Cornell University Joint Microeconomic Theory and Computer Science Seminar (April 21, 2014); University of Rochester Economic Theory Seminar (March 5, 2013); Harvard/MIT Economic Theory Workshop (February 13, 2013); Yale University Microeconomic Theory Workshop (November 6, 2013); Microsoft Research New England Game Theory & Computation Seminar (October 30, 2013).

- “Designing for Diversity in Matching”
 - 14th ACM Conference on Electronic Commerce [EC’13] (June 20, 2013); University of Maryland IO/Theory Seminar (May 7, 2013); Second Cambridge Area Economics and Computation Day [CAEC’13] (April 26, 2013); Washington University in St. Louis Economic Theory Workshop (April 16, 2013); NYU Microeconomic Theory Workshop (March 27, 2013); University of Michigan Economic Theory Seminar (March 15, 2013); “Whither Affirmative Action?” session, AEA Meetings (January 5, 2013); Microsoft Research New England Research Seminar (December 18, 2012); University of Chicago Recruitment Seminar (November 15, 2012); University of Illinois at Urbana-Champaign Microeconomics Seminar (November 7, 2012); Boston College Microeconomics Seminar (October 31, 2012); NBER Market Design Working Group Meeting (October 20, 2012); Federal Reserve Bank of Chicago Economics Research Seminar (August 14, 2012); Fourth World Congress of the Game Theory Society [GAMES2012] (July 24, 2012); Econometric Society North American Summer Meetings (June 30, 2012); University of Haifa Economics Workshop (June 18, 2012); St. Andrews School of Economics & Finance Candlemas Seminar (April 26, 2012); University of Chicago Workshop in Economic Theory (April 10, 2012); Measuring and Interpreting Inequality Working Group Inaugural Meeting (February 18, 2012).
- “A Theory of Empty Voting and Hidden Ownership”
 - Harvard Law, Economics, and Organizations Workshop (November 26, 2012); University of Chicago Workshop in Applications of Economics (May 21, 2012).
- “Multilateral Matching”
 - “Price Theory and Market Design” session, AEA Meetings (January 7, 2012); Columbia Microeconomic Theory Colloquium (October 31, 2011); NBER Market Design Working Group Meeting (October 28, 2011); Maastricht Workshop on Recent Developments in Market Design (September 14, 2011); 12th ACM Conference on Electronic Commerce [EC’11] (June 9, 2011); Harvard SEAS Economics and Computer Science Research Seminar (April 14, 2011); MIT Economic Theory Research Workshop (March 1, 2011); Harvard Workshop on Research in Behavior in Games and Markets (December 1, 2010) Guest Lecture, Harvard Economics 2056a: Market Design (November 19, 2010).
- “Concordance among Holdouts”
 - “New Challenges for Market Design” session, AEA Meetings (January 6, 2012); 12th ACM Conference on Electronic Commerce [EC’11] (June 8, 2011); Harvard Law, Economics, and Organizations Workshop (November 15, 2010); Yahoo! Key Scientific Challenges Summit (September 9, 2010); Economic Analysis Group, Antitrust Division, US Department of Justice (August 12, 2010); HBS Market Design Workshop (May 14, 2010); Harvard Workshop on Research in Behavior in Games and Markets (April 21, 2010); Harvard Graduate Student Political Economy Workshop (November 6, 2009); Harvard Law & Economics Seminar (November 5, 2009).
- “Matching in Networks with Bilateral Contracts”
 - 11th ACM Conference on Electronic Commerce [EC’10] (June 9, 2010); Northwestern EECS Economics Group Theory Seminar (April 5, 2010); HBS Negotiation, Organizations, & Markets Group Research Seminar (February 22, 2010); Stanford Market Design Workshop (January 8, 2010); Harvard SEAS Economics and Computer Science Research Seminar (November 19, 2009).
- “Contract Design and Stability in Matching Markets”
 - “Pricing and Contracts” session, AEA Meetings (January 9, 2011); University of Chicago Informal Labor Economics Seminar (April 7, 2010); Guest Lecture, Harvard Economics 2056a: Market Design (November 20, 2009); Harvard Workshop on Research in Behavior in Games and Markets (November 18, 2009).

- “Sticky Content and the Structure of the Web”
Workshop on Economics of Networks, Systems, and Computation [NetEcon] (July 7, 2009); Harvard SEAS Economics and Computer Science Research Seminar (April 30, 2009).
- “Dynamic Position Auctions with Consumer Search”
5th Conference on Algorithmic Aspects in Information and Management [AAIM] (June 16, 2009); Harvard SEAS Economics and Computer Science Research Seminar (November 4, 2008).
- “Clubs, Beliefs, and Entrapment”
AMS Session on Behavioral Sciences, Joint Mathematics Meetings (January 7, 2009).
- “Configurations of Extremal Even Unimodular Lattices”
MathFest Student Paper Session (August 1, 2008); Brown Symposium for Undergraduates in the Mathematical Sciences (March 8, 2008); Harvard Undergraduate Research Symposium (November 11, 2006); Harvard College Program for Research in Science and Engineering [PRISE] (August 23, 2006).
- “Leonard Bernstein’s Doodles: Grasping Genius Through Graphology”
Guest Lecture, Harvard Freshman Seminar 34m (February 13, 2008); “Leonard Bernstein: Boston to Broadway Symposium,” Harvard (October 14, 2006).
- “Word-painting in Gregorian Chant: A Computer-Assisted Study”
Chant Symposium, Harvard Music 191r: Sources of Gregorian Chant (December 12, 2007).
- “On Universality Properties of Positive-Definite Integral Quadratic Forms”
Harvard Math 99r: Tutorial on Binary Quadratic Forms (January 6, 2006); Intel International Science and Engineering Fair (May 12, 2005) [awarded the top Karl Menger Prize and the Second Place Grand Award in the mathematics category]; Research Science Institute (July 29, 2004).

Plenary Talks and Invited Addresses

- “Good Markets (Really Do) Make Good Neighbors,” First Workshop on Mechanism Design for Social Good [MD4SG] (June 26, 2017).
- “Decisionmaking and Behavioral Economics: From Theory and Experiments to Policy,” Kavli Frontiers of Science U.S. Symposium (November 5, 2015).
- “Measuring PRISE’s Success,” Harvard College Program for Research in Science and Engineering [PRISE] Anniversary Celebration (June 19, 2015).
- “The Future of Economic Design,” University of Chicago Symposium on Technology and Society (May 2, 2015).
- “Generalized Matching Market Design,” Fields Institute Conference on Optimization, Transportation and Equilibrium in Economics (September 15, 2014).
- “Theory, Practice, and Engineering in (Generalized) Matching Market Design,” Harvard Center for Research on Computation and Society [CRCS] Lunch Seminar (November 20, 2013).
- “ N Things I Wish I Understood About (Differential) Privacy,” Simons Foundation Workshop on Applications of Differential Privacy to Economics and the Social Sciences (March 7, 2013).
- “Crisp Printing and Small Type,” ScienceMONTGOMERY Award Ceremony (March 20, 2011).
- “Frontiers of Matching Theory,” Vassar College Mathematics Colloquium (October 12, 2010).
- “Configurations of Extremal Type II Lattices and Codes,” Morgan Prize Lecture, AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates, Joint Mathematics Meetings (January 15, 2010).

Expository Lectures (selected)

- “Theory, Practice, and Engineering in Market Design,” Distinguished Lecture, Harvard College Program for Research in Science and Engineering [PRISE] (June 27, 2017; June 28, 2016; July 22, 2014; July 11, 2013; July 5, 2012).
- “Theory, Practice, and Engineering in Market Design,” Becker Friedman Institute Summer Research Experience for Undergraduates, University of Chicago (June 29, 2012).
- “Microeconomics in 50 Minutes,” MIT Splash (November 21, 2009).
- “How Much Do You Bid?,” Guest Lecture, The Math Circle (May 3, 2009).
- “Why matchmakers?,” Guest Lecture, The Math Circle (December 7, 2008).
- “Matchmaker, Matchmaker, Clear Out My House (an introduction to the theory of matching),” Harvard Mathematics Table (November 21, 2008).
- “ $C = 15$ (new and old results of quadratic form representation theory),” Harvard Mathematics Table (October 20, 2007) [awarded the top Robert Fletcher Rogers Prize].

Discussant Service

- “Game Abstractions for Counterfactual Prediction in Online Markets” by J. Mark Hou, Eric Sodomka, and Nicolas E. Stier-Moses, “Frontiers of Economic Theory and Computer Science” conference, Becker Friedman Institute (August 13, 2016).
- “Chinese College Admissions and School Choice Reforms: Theory and Experiments” by Yan Chen and Onur Kesten, “Market Design Experiments” session, AEA Meetings (January 3, 2014).
- “Localization and Colocalization within an Urban Area” by Stephen B. Billings and Erik B. Johnson, NBER Summer Institute Workshop on Urban Economics (July 22, 2013).
- “Dynamic Contracting: An Irrelevance Result” by Péter Esö and Balázs Szentes, Cowles Foundation Conference in Economic Theory (June 3, 2013).
- “Optimal Auction Design and Equilibrium Selection in Sponsored Search Auctions” by Benjamin Edelman and Michael Schwarz, “Designing Online Advertising Markets” session, AEA Meetings (January 5, 2010).

Advising

Graduate Students

Name	Degree	Year	Institution	Field(s)	Initial Placement
Hanzhe Zhang	PhD	2015	Chicago	Applied Theory, Market Design	Michigan State University
Jörn Boehnke	PhD	2015	Chicago	Industrial Organization	Harvard CMSA (postdoc)
Kentaro Tomoeda	PhD	2016	Harvard	Theory, Market Design	University of Technology Sydney
Ben Roth	PhD	2017	MIT	Development, Market Design	Harvard Business School [EM Unit]

Undergraduate Students

Name	Degree	Year	Institution	Field(s)	Grad Institution	Undergrad Thesis Title
Janet Lu ^{NSF}	AB, <i>summa</i>	2014	Harvard	Market Design	Columbia (PhD)	“Cardinal Utility and Incomplete Information in School Choice”
Zoë Hitzig ^H	AB, <i>magna</i>	2016	Harvard	Evolutionary Game Theory	Cambridge (MPhil); Harvard (PhD)	“The Evolutionary Dynamics of Distributive Justice”
David Freed ^{H,Ha}	AB, <i>magna</i> with highest honors; SM	2016	Harvard	Applied Micro		“Labor Market Bargaining: Theory and Evidence from NBA Free Agency”
Evan Zimmerman	BA + honors	2016	Chicago	Trade		“Estimating the Welfare Impact of The American–Cuban Embargo”

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Undergraduate Students – continued from preceding page

Name	Degree	Year	Institution	Field(s)	Grad Institution(s)	Undergrad Thesis Title
Nathaniel Ver Steeg ^H	AB, <i>summa</i>	2017	Harvard	Market Design	Cambridge (MPhil)	“Reducing National Park Crowding: A Market Design Approach”

^H = awarded the Thomas Temple Hoopes Prize; ^{Ha} = awarded the Seymour E. and Ruth B. Harris Prize;
^{NSF} = awarded an NSF Graduate Research Fellowship

Economic Design Fellows

Name	Home Institution(s)	Year	Field(s)	Fellowship Project Title	Next Port of Call
Max Cytrynbaum	Chicago, Cambridge	2015	Market Design	“Using Lattice Geometry to Find All Stable Allocations”	MIT (PhD)
Nick Jaeger	Woodside Priory	2015	Applied Micro	“Policing Domestic Violence: The Impact of Shelter Funding on Police Response”	Harvard (AB)
Ravi Jagadeesan ^W	Harvard	2016	Theory, Math, Market Design	“Equilibria and Strategic Behavior in Large Matching Markets”	
Robbie Minton	Chicago	2016	Price Theory, Applied Micro	“Assessing Market Signals of Inefficient Patent Enforcement”	Harvard (PhD)
Ross Rheingans-Yoo	Harvard	2016	Theory, Math, Market Design	“Graph Structure and Equilibrium in Large Matching Markets”	Jane Street
Joseph Shayani	Stanford	2016	Theory, Computer Science, Market Design	“Efficiency in ITQ Markets: Overcoming Obstacles of Bycatch and Market Power”	MIT (PhD)

^W = awarded the Jacob Wendell Scholarship Prize

Refereeing

Economics

- *American Economic Journal: Microeconomics, American Economic Review, Cambridge University Press, Econometrica, Economic Theory, Economics and Business Letters, Economics Letters, European Journal of Operational Research, European Research Council [ERC], Games and Economic Behavior, International Journal of Game Theory, International Journal of Industrial Organization, Journal of Economic Geography, Journal of Economic Literature, Journal of Economic Theory, Journal of Health Economics, Journal of Law and Economics, Journal of Legal Studies, Journal of Political Economy, Journal of the European Economic Association, Journal of Urban Economics, Management Science, Mathematical Social Sciences, Mathematics of Operations Research, National Science Foundation [NSF], Operations Research, Papers in Regional Science, Public Choice, Quarterly Journal of Economics, RAND Journal of Economics, Review of Economic Studies, Southern Economic Journal, Swiss National Science Foundation [SNSF], Theoretical Economics, Yale University Press.*

Computer Science

- *ACM Conference on Electronic Commerce [EC], Algorithms, Artificial Intelligence, Conference on Auctions, Market Mechanisms and Their Applications [AMMA], Conference on Web and Internet Economics [WINE], International Workshop on Computational Social Choice [COMSOC], International World Wide Web Conference [WWW], Symposium on Foundations of Computer Science [FOCS], Workshop on the Economics of Networks, Systems, and Computation [NetEcon].*

Mathematics

- *American Invitational Math Exam [AIME], American Mathematics Competition [AMC], Applicable Analysis and Discrete Mathematics, Current Science, Discrete Applied Mathematics, Journal of Theoretical Biology.*

Miscellaneous

Science Fair Judging

- *Final Round Panelist*, Dongrun-Yau Science Award Competition, Tsinghua University (2017).
- *Mathematics Grand Awards Co-Chair*, International Science and Engineering Fair [ISEF] (2017; 2013–2015).
 - *Mathematics Grand Awards Judge* (2012).
- *ISEF Awards Judge*, ScienceMONTGOMERY (2011).