Eytan Bakshy

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Research Statement

I am interested in causal mechanisms for influence in social networks. I run large-scale field experiments and observational studies at Facebook to examine topics including information distribution, attention, monetization, and political media engagement. I also spend a good deal of time developing better methodologies for designing and evaluating online experiments.

Education

Ph.D. Information, University of Michigan. 2007-2011.
Thesis advisor: Lada Adamic.
Dissertation: Information Diffusion and Social Influence in Online Networks.

B.S. Mathematics with High Distinction, University of Illinois at Urbana-Champaign. 2002-2006
Thesis advisor: Karrie Karahalios.
Senior Thesis: A Model of Social Influence and Network Formation.

Peer Reviewed Conference Publications

Eytan Bakshy & Dean Eckles. "Uncertainty in Online Experiments with Dependent Data: An Evaluation of Bootstrap Methods". 19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD). Chicago, IL. August 11-14 2013.

Sean J. Taylor, **Eytan Bakshy**, Sinan A. Aral. "Selection Effects in Online Sharing: Consequences for Peer Adoption". 14th ACM Conference on Electronic Commerce. Philadelphia PA. June 6-20 2013.

Michael Bernstein, **Eytan Bakshy**, Moira Burke, Brian Karrer. "Quantifying the Invisible Audience in Social Networks". ACM CHI Conference on Human Factors in Computing Systems. Paris, France. April 27 - May 2 2013 . **Best Paper Runner up.**

Eytan Bakshy, Dean Eckles, Rong Yan, Itamar Rosenn. "Social Influence in Social Advertising: Evidence from Field Experiments". 13th ACM Conference on Electronic Commerce. Valencia, Spain. June 4-8 2012.

Eytan Bakshy, Itamar Rosenn, Cameron A. Marlow, Lada A. Adamic. "The Role of Social Networks in Information Diffusion". 21st ACM World Wide Web Conference. Lyon, France. April 16-20 2012.

Lars Backstrom, **Eytan Bakshy**, Jon Kleinberg, Thomas M. Lento, Itamar Rosenn. "Center of Attention: How Facebook Users Allocate Attention across Friends". 5th AAAI International Conference on Weblogs and Social Media. Barcelona, Spain. 17-21 July 2011.

Eytan Bakshy, Jake M. Hofman, Winter A. Mason, and Duncan J. Watts. "Everyones an Influencer: Quantifying Influence on Twitter". 4th ACM International Conference on Web Search and Web Data Mining, Hong Kong, China. February 9-12, 2011

David A. Hufaker, Matthew P. Simmons, **Eytan Bakshy**, Lada A. Adamic. "Seller Activity in a Virtual Marketplace". First Monday 15 (7), 2010.

Eytan Bakshy, Matthew P. Simmons, David A. Huffaker, Chun-Yuen Teng, Lada A. Adamic. "The Social Dynamics of Economic Activity in a Virtual World". 4th AAAI International Conference on Weblogs and Social Media. Washington, DC. May 23-26, 2010. **Best Paper Award.**

Eytan Bakshy, Brian Karrer, and Lada A. Adamic. "Social Influence and the Diffusion of User-Contributed Content". 10th ACM Conference on Electronic Commerce. Stanford, CA. July 6-10, 2009.

Lada A. Adamic, Jun Zhang, **Eytan Bakshy**, and Mark Ackerman. "Everybody Knows Something: Examining Knowledge Sharing on Yahoo Answers." 17th ACM International World Wide Web Conference. Beijing, China. April 21-25, 2008.

Refereed Conferences and Symposia

Eytan Bakshy, Will Fithian, Solomon Messing. "Ideal Points in Media Space: Using Social Media to Generate Measures of Political Valence." 2013 MPSA National Conference.

Eytan Bakshy, Jake Hofman, Winter Mason, and Duncan Watts. "Individual Effects in Social Contagion." Society for Personality and Social Psychology 2010: Measurement. Las Vegas, NV. January 28-30, 2010.

Eytan Bakshy and Uri Wilensky. "From Turtle Histories to Alternative Universes: Exploratory Modeling with NetLogo and Mathematica." Agent 2007 Conference: Complex Interaction and Social Emergence. Evanston, IL. November 15-17, 2007.

Forthcoming

Spiro Maroulis, Eytan Bakshy, Louis Gomez, Uri Wilensky. "A Dynamic Model of Market-Based Reform in Education".

Work in Progress

Dean Eckles & Eytan Bakshy. "Bias Reduction in Observational Studies of Social Contagion".

Eytan Bakshy. "Benchmarking with Internet Traffic".

Eytan Bakshy, Solomon Messing, Lada A. Adamic. "How Social Networks Structure Online Political Media Engagement".

Research Experience

Data Scientist   2011-Present
Cameron Marlow   Facebook
Large-scale observational and experimental research on information distribution and attention; experimental research on monetization (e.g., social advertising, targeting, advertiser growth); development of tools for designing and deploying complex field experiments and surveys (e.g., multi-factorial designs, continuous treatments, network clustered assignment), design and development of methodologies for benchmarking production services with user traffic.

Research Assistant   2007-2011
Lada Adamic   University of Michigan
Dissertation work focused on measuring the causal effect of social media on information sharing via large-scale social experiments on Facebook. Previous research examined the social dynamics of economic activity and the diffusion of user-contributed content on Second Life.

Data Science Intern   Summer 2010
Itamar Rosenn   Facebook
Research on information diffusion and social influence using large-scale randomized field experiments on Facebook.

Student Research Scientist   Summer 2009 - Spring 2010
Duncan Watts   Yahoo! Research, NY
Research investigates the role of individuals in the distribution of popular content and the nature of information diffusion on Twitter. Studies examine the diffusion of millions of URL postings, their popularity, and thousands of human evaluations of users and content using Amazon Mechanical Turk.

Research Assistant   2006-2007
Uri Wilensky, Spiro Maroulis   Northwestern University
Developed agent-based simulations for an NSF-HSD project examining the impact of choice-related policy on the Chicago Public School system. Research included longitudinal analysis household, student, and school-level data to which multilevel models were calibrated. The work also included the development of a software package for analyzing the results of large simulations.

Summer Intern   Summer 2002-2004
Uri Wilensky   Northwestern University
Developed agent-based models and interactive courseware on complex systems ranging from physics, chemistry, economics, and theoretical computer science. Created tools for validating agent-based statistical mechanics models with analytical derivations.

Other Professional Experience

Software Developer   1999–2002
Ellen Novak   Stepan Company
Designed and implemented database-driven web and groupware applications. Development included front-end web design with HTML and JavaScript, and back-end implementation with SQL, Active Server Pages, VBScript, and PHP.

Teaching Experience

Graduate Student Instructor, Building Applications for Information Environments (SI 182). Michigan, Winter 2011. **Yahoo! Innovative Teaching Award**.

Graduate Student Instructor, Design of Complex Websites (SI 439). Michigan, Winter 2010.

Lab Assistant, Linear Transformations and Matrix Theory (MATH 415). UIUC, Fall 2004.

Mentorship

Summer intern mentor for Sean Taylor, Summer 2012. Sean did experimental research on selection effects in viral marketing.

Summer intern mentor for Andrew Schmidt, Summer 2008. Andrew helped develop an interactive database-driven system for visualizing group affiliations and social networks on Second Life.

Scientific Community Activities

Reviewer: ACM Transactions on the Web; JSS; WOSN 2008; WWW 2009; CHI 2010, 2011, 2012, 2013; ICWSM 2011, 2012, 2013; EWSSN 2012;

Awards

Yahoo! Innovative Teaching with Technology Award.

AAAI ICWSM 2010 Best Paper Award.

NSF IGERT Fellowship, 2008-2009.

Skills

Technical Skills: Proficient in manipulating and analyzing very large data sets with the MapReduce paradigm (e.g. Hive, Pig, Hadoop streaming, Python). Advanced user of statistical computing and visualization with R. Expert in social network analysis, as well as the design, implementation, and analysis of large-scale randomized field experiments.

Programming Languages: Python, R, Hive, PHP, SQL, Pig Latin, Mathematica, NetLogo, and Java.

Platforms: Unix (including scripting tools), Hadoop, Google App Engine, some experience with Amazon Mechanical Turk.