

Eytan Bakshy

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1 Hacker Way, Menlo Park, CA 94025

Research interests Bayesian optimization, bandit optimization, causal inference, Bayesian machine learning, field experiments

Education

University of Michigan	Ann Arbor, MI
PhD in Information	2007 – 2011
Advisor: Lada Adamic	

University of Illinois at Urbana-Champaign	Champaign, IL
BS in Mathematics & Computer Science	2002 – 2006
<i>High distinctions in mathematics</i>	
Advisor: Karrie Karahalios	

Professional Experience

Research Director, Adaptive Experimentation Team	
Facebook	2021 – Present
Research Manager, Adaptive Experimentation Team	
Facebook	2016 – 2021
Research Scientist, Core Data Science Team	
Facebook	2011 – 2016
Summer Intern, Data Science Team	
Facebook	Summer 2010
Summer Intern, Yahoo! Research NYC	
Yahoo!	Summer 2009
Graduate Student Research Assistant, School of Information	
University of Michigan	2007 – 2011
Research Assistant, Center for Connected Learning	
Northwestern University	2006 – 2007
Summer Intern, Center for Connected Learning	
Northwestern University	Summer 2002 – 2006

Peer-reviewed journal publications

Emma Tosch, Eytan Bakshy, Emery D Berger, David D Jensen, and J Eliot B Moss. PlanAlyzer: assessing threats to the validity of online experiments. *Communications of the ACM*, 2021

Dean Eckles and Eytan Bakshy. Bias and high-dimensional adjustment in observational studies of peer effects. *Journal of the American Statistical Association*, (0):1–30, 2020

Benjamin Letham and Eytan Bakshy. Bayesian optimization for policy search via online-offline experimentation. *Journal of Machine Learning Research*, 20(145):1–30, 2019

Benjamin Letham, Brian Karrer, Guilherme Ottoni, and Eytan Bakshy. Constrained bayesian optimization with noisy experiments. *Bayesian Analysis*, 14(2):495–519, 2019

Jason J Jones, Robert M Bond, Eytan Bakshy, Dean Eckles, and James H Fowler. Social influence and political mobilization: Further evidence from a randomized experiment in the 2012 US presidential election. *PLOS One*, 12(4):e0173851, 2017

Dean Eckles, René F Kizilcec, and Eytan Bakshy. Estimating peer effects in networks with peer encouragement designs. *Proceedings of the National Academy of Sciences*, 113(27):7316–7322, 2016

Eytan Bakshy, Solomon Messing, and Lada Adamic. Exposure to ideologically diverse news and opinion on facebook. *Science*, 348(6239):1130–1132, 2015

Peer-reviewed
conference
publications

Wesley Maddox, Max Balandat, Wilson Andrew G., and Eytan Bakshy. Bayesian optimization with high-dimensional outputs. *Advances in Neural Information Processing Systems*, 34, 2021

Sam Daulton, Max Balandat, and Eytan Bakshy. Parallel multi-objective bayesian optimization with noisy expected hypervolume improvement. *Advances in Neural Information Processing Systems*, 33, 2021

Raul Astudillo, , Daniel Jiang R., Max Balandat, Eytan Bakshy, and Peter Frazier. Multi-step budgeted bayesian optimization with unknown evaluation costs. *Advances in Neural Information Processing Systems*, 34, 2021

Qing Feng, Benjamin Letham, Hongzi Mao, and Eytan Bakshy. High-dimensional contextual policy search with unknown context rewards using bayesian optimization. *Advances in Neural Information Processing Systems*, 33, 2020. **Spotlight.**

Maximilian Balandat, Brian Karrer, Daniel Jiang, Samuel Daulton, Ben Letham, Andrew G Wilson, and Eytan Bakshy. Botorch: A framework for efficient monte-carlo bayesian optimization. *Advances in Neural Information Processing Systems*, 33, 2020

Samuel Daulton, Maximilian Balandat, and Eytan Bakshy. Differentiable expected hypervolume improvement for parallel multi-objective bayesian optimization. In *Advances in Neural Information Processing Systems*, volume 33, 2020

Ben Letham, Roberto Calandra, Akshara Rai, and Eytan Bakshy. Re-examining linear embeddings for high-dimensional bayesian optimization. *Advances in Neural Information Processing Systems*, 33, 2020

Emma Tosch, Eytan Bakshy, Emery D Berger, David D Jensen, and J Eliot B Moss. PlanAlyzer: assessing threats to the validity of online experiments. *Proceedings of the ACM on Programming Languages*, 3(OOPSLA):1–30, 2019

Drew Dimmery, Eytan Bakshy, and Jasjeet Sekhon. Shrinkage estimators in online experiments. In *Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining*, pages 2914–2922, 2019

René F Kizilcec, Eytan Bakshy, Dean Eckles, and Moira Burke. Social influence and reciprocity in online gift giving. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, pages 1–11, 2018

Eytan Bakshy and Eitan Frachtenberg. Design and analysis of benchmarking experiments for distributed internet services. In *Proceedings of the 24th international conference on World Wide Web*. ACM, 2015

Eytan Bakshy, Dean Eckles, and Michael S Bernstein. Designing and deploying online field experiments. In *Proceedings of the 23rd international conference on World wide web*, pages 283–292, 2014

Sean Taylor, Eytan Bakshy, and Sinan Aral. Selection effects in online sharing: Consequences for peer adoption. In *Proceedings of the 14th ACM Conference on Electronic Commerce*, 2013

- Eytan Bakshy and Dean Eckles. Uncertainty in online experiments with dependent data: An evaluation of bootstrap methods. In *Proceedings of the 19th ACM SIGKDD conference on knowledge discovery and data mining*. ACM, 2013
- Michael S Bernstein, Eytan Bakshy, Moira Burke, and Brian Karrer. Quantifying the invisible audience in social networks. In *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2013)*, 2013
- Eytan Bakshy, Dean Eckles, Rong Yan, and Itamar Rosenn. Social influence in social advertising: Evidence from field experiments. In *Proceedings of the 13th ACM Conference on Electronic Commerce*, pages 146–161. ACM, 2012
- Eytan Bakshy, Itamar Rosenn, Cameron Marlow, and Lada Adamic. The role of social networks in information diffusion. In *Proceedings of the 21st international conference on World Wide Web*, pages 519–528. ACM, 2012
- Eytan Bakshy, Jake M Hofman, Winter A Mason, and Duncan J Watts. Everyone’s an influencer: Quantifying influence on twitter. In *Proceedings of the 4th ACM international conference on Web search and data mining*, pages 65–74. ACM, 2011. **Test of Time Award (2021)**.
- Lars Backstrom, Eytan Bakshy, Jon Kleinberg, Thomas M Lento, and Itamar Rosenn. Center of attention: How facebook users allocate attention across friends. In *Proc. 5th International Conference on Weblogs and Social Media*, 2011
- David A Huffaker, Matthew Simmons, Eytan Bakshy, and Lada A Adamic. Seller activity in a virtual marketplace. *First Monday*, 2010
- Eytan Bakshy, Matthew P Simmons, David A Huffaker, Chun-Yuen Teng, and Lada A Adamic. The social dynamics of economic activity in a virtual world. In *Proc. of 4th International AAAI Conference on Weblogs and Social Media*, 2010 **Best Paper Award**.
- Eytan Bakshy, Brian Karrer, and Lada A Adamic. Social influence and the diffusion of user-created content. In *Proceedings of the 10th ACM conference on Electronic commerce*, pages 325–334. ACM, 2009

Lada A Adamic, Jun Zhang, Eytan Bakshy, and Mark S Ackerman. Knowledge sharing and yahoo answers: Everyone knows something. In *Proceeding of the 17th international conference on World Wide Web*, pages 665–674. ACM, 2008

Refereed workshop papers

Samuel Daulton, Shaun Singh, Vashist Avadhanula, Drew Dimmery, and Eytan Bakshy. Thompson sampling for contextual bandit problems with auxiliary safety constraints. 2019

Hongzi Mao, Shannon Chen, Drew Dimmery, Shaun Singh, Drew Blaisdell, Yuandong Tian, Mohammad Alizadeh, and Eytan Bakshy. Real-world video adaptation with reinforcement learning. In *NeurIPS Workshop on Deep Reinforcement Learning*, 2019

Eytan Bakshy, Lili Dworkin, Brian Karrer, Konstantin Kashin, Benjamin Letham, Ashwin Murthy, and Shaun Singh. Ae: A domain-agnostic platform for adaptive experimentation. In *NeurIPS Workshop on Systems for Machine Learning*, 2018

Matthias Feurer, Benjamin Letham, and Eytan Bakshy. Scalable meta-learning for bayesian optimization using ranking-weighted gaussian process ensembles. In *AutoML Workshop at ICML*, volume 7, 2018

Awards

ACM WSDM Test of Time Award	2021
SIGPLAN Research Highlight	2020
Yahoo! Innovative Teaching Award	2011
ICWSM Best Paper Award	2010
Yahoo! Key Scientific Challenges Program	2010
NSF IGERT Fellowship	2007-2008

Invited Keynotes

NeurIPS Workshop on Machine Learning for Systems	December 2019
Uber Workshop on Bayesian Optimization	September 2019
KDD Workshop on Real World Reinforcement Learning	April 2019
MIT Conference on Digital Experimentation	October 2018
Stanford Workshop on Marketplace Innovation	April 2018

Selected Invited Talks and Panels

Frontiers in Causal Inference	June 2021
Univ. of Chicago Computational Social Science Workshop	December 2021

Online Causal Inference Seminar	June 2020
Stanford Seminar on Inference and Society	October 2019
Microsoft Research Seminar Series	May 2019
MIT Conference on Digital Experimentation (Panel)	October 2018
MIT Sloan	October 2017
Univ. of Pennsylvania Wharton	September 2017
Univ. of Vermont	February 2016
UCSF Biostatistics & Epidemiology	March 2015

Skills

Programming Languages

Fluent in R, Python, SQL/Hive

Experience with Hack/PHP, JavaScript, Pig, JavaScript, Java, C/C++

Frameworks

Experience with PyTorch, React, Google App Engine, Hadoop/MapReduce

Selected Service

Organizer for academic community events: Facebook Workshop on Adaptive Experimentation 2020; Facebook request for proposals in sample-efficient optimization 2021

Volunteer mentor: Women in Machine Learning 2018-2019

Area Chair: AISTATS 2020-2022, NeurIPS 2021

Reviewer: AISTATS 2018, NeurIPS 2019-2020, ICML 2019-2020, EC 2010-2014, WWW 2010-2015, CHI 2010, ICWSM 2009-2014

Collaboratories: NYU Social Media and Political Participation 2015-2018

Advisory Boards: University of Pennsylvania Advisory Committee for Scaling Up Experimental, Social and Behavioral Science 2021

Post-docs supervised	Hongseok Namkoong, Columbia Business School	2019
Internship Mentor	Jerry Lin, Stanford University	2019-2020
	Hongzi Mao, MIT	2019
	Wilson Cai, University of California Berkeley	2018
	Karthik Rajkumar, Stanford University	2018
	Soren Kunzel, University of California Berkeley	2017
	Carlos Riquelme, Stanford University	2016
	Drew Dimmery, New York University	2015
	Emmma Tosch, University of Massachusetts Amherst	2015
	Rene Kizilcec, Stanford University	2013-2014
	Joseph Davin, Harvard University	2013
	Sean Taylor, New York University	2012
	Solomon Messing, Stanford University	2012
Thesis Committee	Jerry Lin, Stanford University	2021

