

# CONFERENCE ON DIGITAL EXPERIMENTATION

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Hosted by the MIT Initiative on the Digital Economy

## Friday, October 26th

8:00am Registration, Breakfast, Opening Remarks (7th Floor)

9:00am Plenary Session 1 (7th Floor)

Session Chair: Erik Brynjolfsson (MIT)

Contextual Bandits as Data Collection Algorithms. Susan Athey (Stanford University)

Refuted Causal Claims From Observational Studies. Ron Kohavi (Microsoft)

10:10am Coffee Break (6th Floor)

10:30am Parallel Sessions (6th Floor)

### A: Experiments with Spillovers (DR 3+4)

Session Chair: Ron Kohavi

### B: News & Digital Media (DR 5)

Session Chair: David Holtz

Conditional Randomization Tests of Causal Effects with Interference Between Units. Guillaume Basse (UC Berkeley), Avi Feller (UC Berkeley), Panos Toulis (University of Chicago).

From Tailored Calls-to-Action to Consumption of Online News: A Field Experiment. Sagit Bar-Gill (Tel Aviv University), Yael Inbar (Tel Aviv University), Shachar Reichman (Tel Aviv University).

~~\*Trustworthy Experimentation in Online Marketplaces. Dave Bhoite (eBay Inc.), Pauline Burke (eBay Inc.), Jason Wang (eBay Inc.).~~

Social Media Sharing and Online News Consumption. Sinan Aral (MIT), Michael Zhao (MIT).

Regression Adjustments for Estimating the Global Treatment Effect in Experiments with Interference. Alex Chin (Stanford University).

Man versus Machine: Targeting, Data and Externalities in Online News. Jörg Claussen (LMU Munich and Copenhagen Business School), Christian Peukert (CLSBE), Ananya Sen (MIT).

Using Feasible Ego-Clusters to Measure Network Effects at LinkedIn. Guillaume Saint-Jacques (LinkedIn), Maneesh Varshney (LinkedIn).

Evidence-based Measurement of Copyright Policy in the UK. Mattia Nardotto (KU Leuven), Michael D. Smith (Carnegie Mellon University), Rahul Telang (Carnegie Mellon University), Tommaso Valletti (Imperial College Business School).

Contrasts Attributable to Treatment: What Can Be Learned With No Assumptions on Interference? David Choi (Carnegie Mellon University).

Does Government Surveillance Give Twitter the Chills? Uttara Ananthakrishnan (Carnegie Mellon University), Laura Brandimarte (University of Arizona), Edward McFowland III (University of Minnesota), Sriram Somanchi (University of Notre Dame).

11:45am Lunch (7th Floor)

*\*Please note: this talk has been cancelled.*



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Select conference abstracts are available at: <https://bit.ly/2Es7Sb4>

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## Friday, October 26th

12:45pm Plenary Session 2 (7th Floor)  
Session Chair: Erik Brynjolfsson (MIT)  
Lifting the Veil: The Benefits of Cost Transparency. Leslie John (Harvard Business School)  
Solving Experiment Interference, Practical Solutions @LinkedIn. Ya Xu (LinkedIn)

2:00pm Coffee Break (6th Floor)

2:30pm Parallel Sessions (6th Floor)

C: Methods (DR 3+4)	D: Health, Education & Gender (DR 5)
Session Chair: Michael Zhao	Session Chair: Joshua Blumenstock
Ancillary Empirical Bayes Combining Biased and Unbiased Estimates of Causal Effects. Eytan Bakshy (Facebook), Drew Dimmery (Facebook), Jas Sekhon (UC Berkeley).	Mobile Device Policy, Attention Allocation, and Student Performance: Evidence From a Video Tracking Randomized Field Experiment. Aaron Cheng (Temple University), Zhe Deng (Temple University), Pedro Ferreira (Carnegie Mellon University), Paul A. Pavlou (Temple University).
Criteria-Based Randomization Explicit and Exact Control in Multi-Arm Trials. Mike Baiocchi (Stanford University), Rene F. Kizilcec (Cornell University).	Computer Algorithms Prefer Headless Women. Grazia Cecere (Institut Mines Telecom), Clara Jean (Université Paris Sud and Epitech, Paris), Matthieu Manant (Université Paris Sud), Catherine Tucker (MIT).
Improving Treatment Effect Estimators Through Experiment Splitting. Dominic Coey (Facebook), Tom Cunningham (Facebook).	Putting Prediction into Practice: Restaurant Hygiene Inspections. Edward L. Glaeser (Harvard), Andrew Hillis (Persistent Systems), Hyunjin Kim (Harvard Business School), Michael Luca (Harvard Business School).
Time Series Experiments and Causal Estimands: Exact Randomization Tests and Trading. Iavor Bojinov (LinkedIn), Neil Shephard (Harvard University).	Mobile Self-verification and Support for Successful Tuberculosis Treatment. Syon P. Bhanot (Swarthmore College), Maureen K. Kimenye (Kenya Ministry of Health), Eunice Mailu (Kenya Ministry of Health), Enos Masini (World Health Organization), David Rand (Yale University), Jon Rathouser (Keheala Ltd.), Erez Yoeli (Yale University).

3:45pm Coffee Break (6th Floor)



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## Friday, October 26th

4:15pm Parallel Sessions (6th Floor)

E: Data-Driven Decision Making & Experimentation  
(DR 3+4)

F: Advertising (DR 5)

Session Chair: David Holtz

Session Chair: Michael Zhao

A/B Testing and Firm Performance. Aaron Chatterji (Duke Fuqua and NBER), Sharique Hasan (Duke Fuqua), Rembrand Koning (Harvard Business School).

Measuring Long-term Impact of Ads on LinkedIn Feed. Shaunak Chatterjee (LinkedIn), Souvik Ghosh (LinkedIn), Haishan Liu (LinkedIn), Birjodh Tiwana (LinkedIn), Jinyun Yan (LinkedIn).

When Small Business Become Data-Driven: A Field Experiment. Sagit Bar-Gill (TAU and MIT), Erik Brynjolfsson (MIT), Nir Hak (Harvard).

Consumer Sensitivity to Video versus Audio Ads: A New Long-Run Experiment on Pandora Internet Radio. David Reiley (Pandora Media, Inc.), Hongkai Zhang (Pandora Media, Inc.).

Critical Condition: People Only Object to Corporate Experiments If They Object to a Condition. Robert Mislavsky (Johns Hopkins University), Berkeley Dittvorst (University of Chicago), Uri Simonsohn (ES-ADE).

Effectiveness of Paid Search Advertising: Experimental Evidence. Weijia (Daisy) Dai (Lehigh), Hyunjin Kim (Harvard Business School), Michael Luca (Harvard Business School).

On the Detection of p-Hacking in Experimental Meta-Analysis A Non-Parametric Procedure for Analyzing Discontinuities. Alex P. Miller (University of Pennsylvania), Kartik Hosanagar (University of Pennsylvania).

Measuring Marketing Campaign Causal Effectiveness: The UAC Case Study. Mert Bay (Uber Technologies, Inc.), Joel Barajas (Uber Technologies, Inc.), Tina Nikou (Uber Technologies, Inc.), Tom Zidar (Uber Technologies, Inc.).

Teaching Large-Scale Digital Experimentation to Undergraduates and Graduate Students. Nathan J. Matias (Princeton University).

Mobile Advertising as a Customer Retention Strategy: Evidence from a Randomized Field Experiment. Aaron Cheng (Temple University), Ting Li, (Erasmus University).

5:30pm Fireside Panel (7th Floor)

7:00pm Reception (7th Floor)



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## Saturday, October 27th

8:30am Registration, Breakfast, Opening Remarks (7th Floor)

9:30am Plenary Session 3 (7th Floor)

Session Chair: Dean Eckles (MIT)

Optimal Team Construction for a Complex Task. Duncan Watts (Microsoft)

Toward Real-Time Measures of Poverty and Vulnerability. Joshua Blumenstock (UC Berkeley)

10:30am Coffee Break (6th Floor)

10:45am Parallel Sessions (6th Floor)

### G: Network Structure (DR 3+4)

Session Chair: Ron Kohavi

Is Time Our Friend or Enemy? The Impact of Timing on Online Experimentation. Yiling Chen (Harvard University), Emma Heikensten (Stockholm School of Economics), Ming Yin (Purdue University).

Increasing Response Rates to Email Surveys in MOOCs. Dan Ding (National University of Singapore), Oleksandra Poquet (National University of Singapore), Joseph Jay Williams (University of Toronto).

Combining Residualization Methods to Better Estimate Treatment Effects in Randomized Controlled Trials. Anthony F. Botelho (Worcester Polytechnic Institute), Johann Gagnon-Bartsch (University of Michigan), Neil T. Heffernan (Worcester Polytechnic Institute), Luke Miratrix (Harvard University), Thanaporn Patikorn (Worcester Polytechnic Institute), Adam C. Sales (University of Texas at Austin), Edward Wu (University of Michigan).

Role of Reference Points in the Goal-directed Website: A Randomized Field Experiment. Victor Benjamin (Arizona State University), Qinglai He (Arizona State University), Yili Hong (Arizona State University), Raghu Santanam (Arizona State University).

### H: Methods II (DR 5)

Session Chair: Joshua Blumenstock

Experimentation for Homogeneous Policy Change. Drew Dimmery (Facebook), Molly Offer-Westort (Yale University).

A Principal Stratification Approach to Uncomplicate Causal Inference Complications on Social Networks. Kristen M. Altenbuger (Stanford University).

Evaluating Stochastic Seeding Strategies in Networks. Alex Chin (Stanford University), Dean Eckles (MIT), Johan Ugander (Stanford University).

Social Learning in Prosumption: Evidence From a Large Randomized Field Experiment. Ravi Bapna (University of Minnesota), Joseph Golden (Collage.com), JaeHwuen Jung (Temple University), Tianshu Sun (University of Southern California).

12:00pm Lunch and Poster Slam (7th Floor)



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## Saturday, October 27th

1:30pm Parallel Sessions (6th Floor)

### I: Social Media & Digital Communities (DR 3+4)

Session Chair: David Holtz

The Adverse Effect of “Likes” and Friends’ “Likes” on Facebook Ads. Ashish Agarwal (UT Austin), Shun-Yang Lee (UConn), Andrew Whinston (UT Austin).

Be Gentle to the Newbies: Heterogeneous Impact of Negative Feedback in Online Communities. Laura Brandimarte (University of Arizona), Wei Chen (University of Arizona), Dong Jing (Harbin Institute of Technology), Yinchu Zhu (University of Oregon).

Sympathy to the Seemingly Needy? How Social Influence Alleviates Biases in Medical Crowdfunding. Yuan Cheng (Tsinghua University), Yu Jeffrey Hu (Georgia Institute of Technology), Yun Young Hur (Georgia Institute of Technology), Fujie Jin (Indiana University), Xitong Li (HEC Paris).

The Interplay of Information from Friends and from the Crowd to Search and to Purchase Experience Goods: Results from an Observational Study and from A Randomized Control Trial. Baojiang Yang (Carnegie Mellon University), Miguel Godinho de Matos (Carnegie Mellon University), Pedro Ferreira (Carnegie Mellon University).

Exposure to Opposing Views on Social Media can Increase Political Polarization on Social Media. Christopher A. Bail (Duke University), Lisa P. Argyle (Brigham Young University), Taylor W. Brown (Duke University), John P. Bumpus (Duke University), Haohan Chen (Duke University), M. B. Fallin Hunzaker (New York University), Jaemin Lee (Duke University), Marcus Mann (Duke University), Friedolin Merhout (Duke University), Alexander Volfosky (Duke University).

### J: Accelerating Experimentation (DR 5)

Session Chair: Jas Sekhon

Maximizing Power in A/B Testing, While Using Alpha-Spending For Early Stopping. Grigory Bordyugov (Zalando Experimentation Team), Darya Dedik (Zalando Experimentation Team), Shan Huang (Zalando Experimentation Team), Aaron McDaid (Zalando Experimentation Team).

Acceleration of A/B/n Testing Under Time-varying Signals. Jimmy Jin (Optimizely), Leo Pekelis (Open-door).

Sequential Randomization to Develop Personalized and Optimized Interventions in Massively Open Online Courses: A Case Study. Christopher Brooks (University of Michigan), Joshua Gardner (University of Washington), Timothy NeCamp (University of Michigan).

Simulation-Enriched Bayesian Optimization for Online Experiments. David Arbour (Facebook), Eytan Bakshy (Facebook), Si Chen (Facebook), Benjamin Letham (Facebook).

Surrogacy Modeling for Rapid Experimentation. Maximilian Balandat (Facebook), Eytan Bakshy (Facebook), Weixin Cai (UC Berkeley).

2:45pm Coffee Break (6th Floor)



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## Saturday, October 27th

3:15pm Parallel Sessions (6th Floor)

K: eCommerce (DR 3+4)

L: Experiments and Natural Experiments in Digitization (DR 5)

Session Chair: Dean Eckles

Session Chair: Jas Sekhon

Completing the Online-Offline Circle at the Last Mile: A Large Field Experiment with Alibaba. Leon Yang Chu (University of Southern California), Brian Rongqing Han (University of Southern California), Tianshu Sun (University of Southern California), Lixia Wu (Alibaba Group Inc.).

Does Machine Translation Affect International Trade? Evidence From a Large Digital Platform. Erik Brynjolfsson (MIT), Xiang Hui (Washington University - St. Louis, MIT) Meng Liu (Washington University - St. Louis, MIT).

A Field Experiment on Whether and How Free Sample Promotion Increase Purchase on Digital Retail Platforms. Lin Boldt (University of Central Florida) Xueming Luo (Temple University), Charles Gilliland (Temple University), Xiaoyi Wang (Zhejiang University).

Gender Differences in Job Preferences and Gender Wage Gap in Online Gig Economy. Bin Gu (Arizona State University), Yili Hong (Arizona State University), Chen Liang (Arizona State University), Jing Peng (University of Connecticut).

Open Voice or Private Message? The Hidden Tug-of-War on Social Media Customer Service. Shu He (UConn), Shun-Yang Lee (UConn), Huaxia Rui (University of Rochester).

Digitization and Divergence: Online school ratings and segregation in America. Sharique Hasan (Duke University), Anuj Kumar (University of Florida).

Discount Bundling via Dense Product Embeddings. Madhav Kumar (MIT), Dean Eckles (MIT), Sinan Aral (MIT).

The Impact of Embeddedness Structure on Social Network Response to an Earthquake. Nicholas A. Christakis (Yale University), Jianmin Jia (The Chinese University of Hong Kong), Jayson S. Jia (The University of Hong Kong), Yiwei Li (The Chinese University of Hong Kong), Xin Lu (National University of Defense Technology).

Not Registered? Please Sign-up Now: A Randomized Field Experiment on the Optimal Timing of Registration Request. Joseph M. Golden (Collage.com), Ni Huang (Arizona State University), Jinchi Lv (University of Southern California), Probal Mojumder (University of Southern California), Tianshu Sun (University of Southern California).

A Large-scale Natural Experiment of Indirect Reciprocity. Alex 'Sandy' Pentland (MIT), Chenhao Tan (University of Colorado, Boulder), Jie Tang (Tsinghua University), Tracy Xiao Liu (Tsinghua University), Yuan Yuan (MIT).

4:30pm Coffee Break (7th Floor)



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## Saturday, October 27th

5:00pm Plenary Session 4 (7th Floor)

Session Chair: Dean Eckles (MIT)

Retention Futility: Targeting High-Risk Customers Might Be Ineffective. Eva Ascarza (Harvard Business School)

Transfer Learning for Estimating Causal Effects using Neural Networks. Jas Sekhon (UC Berkeley)

6:15pm Poster Session and Reception (7th Floor)

STEM and Teens: An Algorithm Bias on a Social Media. **Grazia Cecere (Institut Mines Telecom), Fabrice Le Guel (Université Paris Sud), Clara Jean (Université Paris Sud and Epitech, Paris), Matthieu Manant (Université Paris Sud).**

Directions for Research on Artifact Sampling in Information Studies. Roman Lukyanenko (HEC Montréal), Jeffrey Parsons (Memorial University of Newfoundland), Binny M. Samuel (University of Cincinnati).

Empirica: Real-Time, Synchronous, Virtual Lab Platform. Abdullah Almaatouq (MIT).

Social Contagion of Interdependent Beliefs. James Houghton (MIT).

Exploring the Reliability of the NYC Subway System. Renzhentaxi Baerde (Adelphi University), Peter Farquharson (Lehman College), Brian Hernandez (Hunter College), Akbar Mirza (City College of New York), Phoebe Nguyen (Baruch College), Sasha Paulovich (Fordham University), Amanda Rodriguez (Lehman College), Ayliana Teitelbaum (Yeshiva University).

Detecting Bot Activity in the Ethereum Blockchain Network. Yaniv Altshuler (MIT, Endor Ltd.), Alex 'Sandy' Pentland (MIT), Shahar Som-in (MIT), Moritz Zwang (MIT).

Dynamic Equilibration of ERC20 Network. Yaniv Altshuler (MIT, Endor Ltd.), Goren Gordon (Tel Aviv University, Endor Ltd.), Alex 'Sandy' Pentland (MIT), Shahar Som-in (MIT).

Controlling or Losing Control Conditioning on Covariates in Randomized Experiments Guided by Causal Structure. Galit Shmueli (National Tsing Hua University), Ali Tafti (University of Illinois at Chicago).

CFO: Conditional Effect Based Funnel Testing for Conversion Rate Optimization. Yuanshuo (David) Zhao (Georgia Institute of Technology), C. F. Jeff Wu (Georgia Institute of Technology).

Shared Prosperity (or lack thereof) in the Sharing Economy. Mohammed Alyakoob (Purdue University), Mohammad Rahman (Purdue University).

App-Rooming Targeting. Debashish Ghose (Temple University), Xueming Luo (Temple University), Takeshi Moriguchi (Waseda University), Jack (Siliang) Tong (Temple University).

How Platform Algorithms Incentivize Sellers to Specialize or Innovate in Sharing Economy. Jing Li (Hong Kong Polytechnic University), Zhijie Lin (Nanjing University), Xueming Luo (Temple University), Siliang Tong (Temple University).

Pathways for Platform Protection Intervention Promotes Network Externalities: Natural Experiment and Machine Learning in a Sharing Economy. Zhijie Lin (Nanjing University), Xueming Luo (Temple University), Siliang Tong (Temple University), Cheng Zhang (Fudan University).

Blockchain Platform Network Externalities: A Time-Series Causal Analysis. Hemang Subramanian (Florida International University).

Instructor-Centered Tools for Experimenting in Education. Andrew Ang (Harvard University), Juho Kim (KAIST), Walter Lasecki (University of Michigan), Anna Rafferty (Carleton College), Dustin Tingley (Harvard University), Joseph Jay Williams (University of Toronto).

Mediation Analysis in Online Experiments at Booking.com: Disentangling Direct and Indirect Effects. Caio Gomes (Booking.com), Zoé van Havre (Booking.com), Bahattin Tolga Öztan (Booking.com), Lukas Vermeer (Booking.com).



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Reference Price Effects in Online Peer to Peer Markets. Shrabastee Banerjee (Boston University), Anita Rao (University of Chicago), Georgios Zervas (Boston University).

Quantifying Social Influence Via Signed Network Structure. Xiaowen Dong (University of Oxford), Yan Leng (MIT), Esteban Moro (MIT), Alex 'Sandy' Pentland (MIT).

Meet an Emergency? An Empirical Analysis of Productivity on Taxi and Ridesharing Platforms Yingjie Zhang (UTD), Beibei Li (CMU), Zhen (Sean) Qian (CMU).

Machine and Human: A Field Experiment of AI Chatbot Disclosure for Conversational Commerce. Fang, Xueming Luo (Temple University), Siliang Tong (Temple University).

Pragmatic Men, Idealistic Women? Performance Feedback Design on Two-sided Matching Platforms. Peng Huang (University of Maryland), Lanfei Shi (University of Maryland).

Efficient Multi-Objective Bayesian Optimization of Online Experiments using Multi-Task Gaussian Processes. Eytan Bakshy (Facebook), Karthik Rajkumar (Stanford University).

Do Digital Platforms Reduce Moral Hazard The Case of Uber and Taxis. Erik Brynjolfsson (MIT), Jason Dowlatabadi (Uber Technologies), Meng Liu (Washington University-St. Louis, MIT).

Generating Instrumental Variables via Random Forest to Address Endogeneity due to Prediction Error in Data-Mined Variables. Gediminas Adomavicius (University of Minnesota), Gordon Burtch (University of Minnesota), Edward McFowland III (University of Minnesota), Mochen Yang (Indiana University).

The Value of Personalized Medicine: Treatment Effect Heterogeneity One Year Beyond Left Ventricular Assist Device Implantation. Jeffrey S. McCullough (University of Michigan), Sriram Somanchi (University of Notre Dame).



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