Eaman Jahani

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Research Interests

I am interested in how network processes and social incentives affect a wide array of outcomes such as economic inequality, information diffusion, fundraising success, sharing misinformation and hate speech. To this end, I use computational techniques and causal inference in networks, develop new network structure models and design online lab experiments to study how networks affect inequality and economic outcomes.

Areas of Specialisation

Statistics, Network Science, Social Networks, Experiment Design, Causal Inference, Social Sciences

Education

Massachusetts Institute of Technology, Cambridge Sep 2015 - Sep 2021

Institute for Data, Systems and Society, *PhD in Social and Engineering Systems*
Statistics and Data Science Center, *Interdisciplinary PhD in Statistics*
Thesis title: *Network Effects on Outcomes and Unequal Distribution of Resources*
Advisors: Alex 'Sandy' Pentland, Dean Eckles

University Of Michigan, Ann Arbor Sep 2005 - July 2011

Computer Science Department, *BSc and MSc in Computer Science*

Research Experience

UC Berkeley, Department of Statistics, Berkeley Jan 2022 - Present
RTG Postdoctoral Associate

- Developing statistical methods for identification of causal effects in network experiments with interference between units. The goal is to define an experimental setup that makes as few assumptions about structure of interference as possible.

World Bank, Washington DC Mar 2022 - Present
Research Consultant

- Working on design and implementation of a field experiment in Nigeria that aims to evaluate and compare the effectiveness of several network-based interventions in reducing hate speech in Nigerian Twitter. A big component of the project is developing an efficient randomization design that accounts for treatment interference on the Twitter network.

MIT Sloan School of Management, Cambridge Sep 2021 - Jan 2022
Postdoctoral Associate

- Worked on establishing the causal link between network structure and outcomes, with fundraising in social networks as the case study. Random activation of ties in the network on any given day acted as an instrument to identify the causal effect of different types of ties, in an otherwise endogenous network.

Meta, Boston Dec 2019 - Dec 2021
Consulting Researcher, Core Data Science

- Studied the link between frequency of long ties in Facebook network and economic well-being. Also identified why some individuals have more long ties and attributed that to certain life events. Developed a pipeline for publicly releasing part of the data.

Teaching Experience

UC Berkeley, Department of Statistics, Berkeley Jan 2022 - Present

- *Concepts of Statistics (Fall 2022):* A comprehensive survey course in statistical theory and methodology, meant for junior or graduate student with strong math background. Topics include parameter estimation, hypothesis testing, confidence intervals, parametric and non-parametric statistical tests, analysis of variance, linear regression and computing using R.

- *Introduction to Statistics (Spring 2022):* An introductory course to statistics for students without a math background. Course covers population and variables, standard measures of location, spread and association, normal approximation, regression, probability and sampling, interval estimation and significance tests.

Professional Experience

Google, New York July 2011 - Nov 2014
Software Engineer, AdWords

- Worked on several projects around the AdWords ad auction, using statistical methods and building pipelines for making suggestions to advertises on how to improve their performance in the auction.

Publications

Working Papers or Under review

- *Economic Impact and Determinants of Long Ties*
Eaman Jahani, Samuel Fraiberger, Michael Bailey, Dean Eckles
Revise and Resubmit at Proceedings of the National Academy of Sciences, 2022

- *A Randomized Online Experiment during the 2020 US-Iran Crisis shows that Exposure to Common Enemies can Increase Political Polarization*
Eaman Jahani, Natalie Gallagher, Friedolin Merhout, Nicolo Cavalli, Douglas Guilbeault, Yan Leng, Christopher A. Bail
Revise and Resubmit at Scientific Reports, 2022

- *The Network Structure of Unequal Diffusion*
Eaman Jahani, Dean Eckles, Alex "Sandy" Pentland
arxiv, 2022

- *Rivalrous Resource Sharing in Networks can Exacerbate Existing Inequalities*
Eaman Jahani, Dean Eckles
Manuscript available upon request, 2021

- *Tie Strength and Length in Social Capital: Evidence from Charitable Fundraising*
Eaman Jahani, Michael C. Bailey, Dean Eckles

- *Mobility Network Reveals the Impact of Geographic Vaccination Heterogeneity on COVID-19*
  Yuan Yuan, **Eaman Jahani**, Shengjia Zhao, Yong-Yeol Ahn, Alex "Sandy" Pentland
  Submitted, 2021

Selected Referred Articles

- *Social Debunking of Misinformation on WhatsApp: The Case for Strong and In-group Ties*
  Irene Pasquetto, **Eaman Jahani**, Shubham Atreja, Matthew Baum
  Proceedings of the ACM on Human-Computer Interaction-CSCW, 2022

- *Segregated Interactions in Urban and Online Spaces*
  Xiaowen Dong*, Alfredo J. Morales*, **Eaman Jahani***, Esteban Moro, Bruno Lepri, Burcin Bozkaya, Carlos Sarraute, Yaneer Bar-Yam, Alex "Sandy" Pentland
  EPJ Data Science, 2020

- *Measuring the Predictability of Life Outcomes with a Scientific Mass Collaboration*
  Matthew J. Salganik in Mass Collaboration with 111 Authors
  Proceedings of the National Academy of Sciences, 2020

- *Winning Models for Grade Point Average, Grit, and Layoff in the Fragile Families Challenge*
  Daniel E Rigobon, **Eaman Jahani**, Yoshihiko Suhara, Khaled AlGhoneim, Abdulaziz Al-ghunaim, Abdullah Almaatouq
  Socius: Sociological Research for a Dynamic World, 2019

- *ScamCoins, S*** Posters, and the Search for the Next Bitcoin^{TM}: Collective Sensemaking in Cryptocurrency Discussions*
  Eaman Jahani, Peter M. Krafft, Yoshihiko Suhara, Esteban Moro, Alex "Sandy" Pentland
  Proceedings of the ACM on Human-Computer Interaction-CSCW, 2018

- *Improving official statistics in emerging markets using machine learning and mobile phone data*
  Eaman Jahani, Pål Sundsøy, Johannes Bjelland, Linus Bengtsson, Alex "Sandy" Pentland, Yves-Alexandre de Montjoye
  EPJ Data Science, 2017

- *Differential Network Effects on Economic Outcomes: A Structural Perspective*
  Eaman Jahani, Guillaume Saint-Jacques, Pål Sundsøy, Johannes Bjelland, Esteban Moro, Alex "Sandy" Pentland
  International Conference on Social Informatics, 2017

- *Deep learning applied to mobile phone data for individual income classification*
  Pål Sundsøy, Johannes Bjelland, Bjørn-Atle Reme, Asif M Iqbal, **Eaman Jahani**
  International Conference on Artificial Intelligence: Technologies and Applications, 2016

- *Automatic Optimization for MapReduce Programs*
  Eaman Jahani, Michael J. Cafarella, Christopher Ré.
  VLDB, 2011

Honors and Awards

NSF Graduate Research Fellowship 2015-2018
Software Engineering Promotion, Google 2013
Dean's List and James B. Angell Scholar, University of Michigan 2009

Recent Talks

- *Network Processes can Exacerbate Existing Inequalities*, Conference Networks Science and Economics, Chicago, 2022
- *Exposure to Common Enemies can Increase Political Polarization: Evidence from an Experiment with Automated Partisans*, Conference on Digital Experimentation (CODE), Boston, 2020
- *Network Structure of Unequal Diffusion*, International Conference of Computational Social Science, Boston, 2020 *Network Structure of Unequal Diffusion*, International Conference of Computational Social Science, Boston, 2020
- *The Role of Social Ties in Debunking False Claims*, International Conference of Computational Social Science, Boston, 2020
- *Collective Sensemaking in Online Groups: The case of Cryptocurrency Discussions*, Sunbelt Conference, Montreal, 2019
- *ScamCoins, S*** Posters, and the Search for the Next Bitcoin^{TM}: Collective Sensemaking in Cryptocurrency Discussions*, CSCW Conference, New York, 2018
- *Differential Network Effects on Economic Outcomes: A Structural Perspective*, Network Science Conference, Paris, 2018
- *Differential Network Effects on Economic Outcomes: A Structural Perspective*, International Conference of Computational Social Science, Cologne, 2017
- *Bubbles and Network Structure: a study in cryptocurrencies*, International Conference of Computational Social Science, Helsinki, 2015

Service

Organizing

- *Summer Institute for Computational Social Science, Partner Site*, Boston, 2019

Reviewing

- *Statistical Methods & Applications*, 2022
- *Social Forces*, 2021
- *Social Forces, IC2S2*, 2020
- *ICIS*, 2018

Technical Skills

R, Python, C++, C, Java, UNIX shell scripting, SQL, Presto, Spark, PHP

Last updated: October 2, 2022