

## Academic Positions

- 2023– **Assistant Professor**, Department of Data Sciences and Operations, USC.  
2021–2023 **Foundations of Data Science Institute Postdoc Fellow**, UC Berkeley.  
Advisors: Peng Ding, Jasjeet Sekhon, Bin Yu

## Education

- 2017–2020 **PhD Electrical Engineering and Computer Science**, MIT.  
Thesis: “Causal Inference: a Tensor’s Perspective”  
Advisor: Devavrat Shah  
2015–2017 **MS Electrical Engineering and Computer Science**, MIT.  
Thesis: “Robust Synthetic Control”  
Advisor: Devavrat Shah  
2011–2015 **BS Electrical and Computer Engineering**, UC San Diego.  
Advisors: Sujit Dey, Mohan Trivedi

## Research Interests

Causal inference, high-dimensional statistics, machine learning

## Industry Experience

- 2021–2022 **Uber Technologies**.  
Technical Consultant  
2020–2021 **TauRx Therapeutics**.  
Technical Consultant  
2018 **Facebook**.  
Core Data Science Research intern

## Selected Awards

- 2021 INFORMS George B. Dantzig Dissertation Award, 2nd place  
2021 MIT George Sprowls PhD Thesis Award in Artificial Intelligence & Decision-making, 1st place  
2021 NSF I-Corps Grant, \$50k  
2017–2020 Draper Fellowship  
2015–2018 National Physical Science Consortium Fellowship (funded by National Security Agency)  
2015–2016 MIT EECS Advanced Television and Signal Processing Fellowship

## Publications

Note: “♣” denotes alphabetical ordering by last name. “★” denotes equal contribution.

9. “Causal Matrix Completion”  
♣ Anish Agarwal, Munther Dahleh, Devavrat Shah, **DS**  
○ Conference: *Conference on Learning Theory (COLT)*, 2023  
○ Software: <https://github.com/deshen24/syntheticNN>
8. “Public Health Implications of Opening NFL Stadiums during the COVID-19 Pandemic”  
Anette Peko Hosoi, Bernardo Garcia Bulle Bueno, **DS**, Devavrat Shah  
○ Journal: *Proceedings of the National Academy of Sciences (PNAS)*, 2022

7. "Causal Imputation via Synthetic Interventions"  
Chandler Squires\*, **DS**\*, Anish Agarwal, Devavrat Shah, Caroline Uhler  
  - o Conference: *Causal Learning and Reasoning (CLEaR)*, 2022
6. "PerSim: Data-efficient Offline Reinforcement Learning with Heterogeneous Agents via Personalized Simulators"  
  - ♣ Anish Agarwal, Abdullah Alomar, Varkey Alumootil, Devavrat Shah, **DS**, Zhi Xu, Cindy Yang
  - o Conference: *Neural Information Processing Systems (NeurIPS)*, 2021
5. "Synthetic Interventions"  
  - ♣ Anish Agarwal, Devavrat Shah, **DS**
  - o Workshop: *Neural Information Processing Systems (NeurIPS) Workshop on Causal Inference & Machine Learning*, 2019
4. "On Robustness of Principal Component Regression"  
  - ♣ Anish Agarwal, Devavrat Shah, **DS**, Dogyoon Song
  - o Journal: *Journal of the American Statistical Association (JASA)*, 2021
  - o Conference: *Neural Information Processing Systems (NeurIPS)*, 2019  
**[oral presentation: top 0.5% of total submissions]**
3. "Multi-dimensional Robust Synthetic Control"  
  - ♣ Jehangir Amjad, Vishal Misra, Devavrat Shah, **DS**
  - o Journal: *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, 2019
  - o Conference: *Sigmetrics*, 2019
2. "Model Agnostic Time Series Analysis via Matrix Estimation"  
  - ♣ Anish Agarwal, Jehangir Amjad, Devavrat Shah, **DS**
  - o Journal: *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, 2018
  - o Conference: *Sigmetrics*, 2019
  - o Workshop: *Neural Information Processing Systems (NeurIPS) Workshop on Time Series*, 2017  
**[best poster award]**
1. "Robust Synthetic Control"  
  - ♣ Jehangir Amjad, Devavrat Shah, **DS**
  - o Journal: *Journal of Machine Learning Research (JMLR)*, 2018
  - o Workshop: *INFORMS*, 2017  
**[best poster runner-up award]**

## Technical Report

1. "Two Burning Questions on COVID-19"  
  - ♣ Anish Agarwal, Abdullah Alomar, Arnab Sarker, Devavrat Shah, **DS**, Cindy Yang, 2020
  - o MIT News

## Under Review

3. "Same Root Different Leaves: Time Series and Cross-Sectional Methods in Panel Data"  
**DS**, Peng Ding, Jasjeet Sekhon, Bin Yu, 2022  
  - o Software: <https://github.com/deshen24/panel-data-regressions>
2. "Personalized Predictions from Population-level Experiments: A Study on Alzheimer's Disease"  
**DS**, Anish Agarwal, Vishal Misra, Bjoern Schelter, Devavrat Shah, Helen Shiells, Claude Wischik, 2022
1. "On Model Identification and Out-of-Sample Prediction of Principal Component Regression: Applications to Synthetic Controls"  
  - ♣ Anish Agarwal, Devavrat Shah, **DS**, 2022

## Selected Talks

- 2023
  - INFORMS (Phoenix)
  - Joint Statistical Meeting (Toronto)
  - ACM FCRC (Orlando)
  - ICSA Applied Statistics Symposium (Michigan)
- 2022
  - American Causal Inference Conference (UC Berkeley)
  - Synthetic Controls Methods Workshop (Princeton)
  - Tutorial at International Symposium for Information Theory (Helsinki, Finland)
  - Purdue University's Causal Machine Learning for Novel Settings Boot Camp
  - INFORMS (Indianapolis)
  - UC Berkeley Econometrics Seminar
  - Stanford Econometrics Seminar
  - UCLA Information Theory and Systems Laboratory Group Meeting
  - Stanford Data-Driven Decisions and Inference Group Meeting
  - IMS International Conference on Statistics and Data Science (Florence, Italy)
  - Computational and Methodological Statistics (King's College London, UK)
- 2021
  - Simons Institute (UC Berkeley)
  - Uber Marketplace
  - Online Causal Inference Seminar (Stanford)
  - INFORMS (Anaheim)

## Teaching

- 2019 MIT EECS 6.s077: Introduction to Data Science and Statistics
- 2014-2015 UC San Diego ECE 35: Introduction to Analog Circuit Design
- 2014-2015 UC San Diego ECE 25: Introduction to Digital Circuit Design

## Academic References

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