

## 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

- 2022–2023 **Uber Technologies**  
Technical Consultant  
2021–2022 **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.

11. “Obtaining Personalized Predictions from a Randomized Controlled Trial on Alzheimer’s Disease”  
**DS**, Anish Agarwal, Vishal Misra, Bjoern Schelter, Devavrat Shah, Helen Shiells, Claude Wischik  
○ Journal: *Nature Scientific Reports*, 2024
10. “Same Root Different Leaves: Time Series and Cross-Sectional Methods in Panel Data”  
**DS**, Peng Ding, Jasjeet Sekhon, Bin Yu  
○ Journal: *Econometrica*, 2023  
○ Software: <https://github.com/deshen24/panel-data-regressions>

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"  
 Bernardo Garcia Bulle Bueno\*, **DS\***, Devavrat Shah, Anette Peko Hosoi  
 ○ 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  
 ○ 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  
 ○ Conference: *Neural Information Processing Systems (NeurIPS)*, 2021
5. "Synthetic Interventions"  
 ♣ Anish Agarwal, Devavrat Shah, **DS**  
 ○ 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  
 ○ Journal: *Journal of the American Statistical Association (JASA)*, 2021  
 ○ 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**  
 ○ Journal: *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, 2019  
 ○ Conference: *Sigmetrics*, 2019
2. "Model Agnostic Time Series Analysis via Matrix Estimation"  
 ♣ Anish Agarwal, Jehangir Amjad, Devavrat Shah, **DS**  
 ○ Journal: *Proceedings of the ACM on Measurement and Analysis of Computing Systems (POMACS)*, 2018  
 ○ Conference: *Sigmetrics*, 2019  
 ○ Workshop: *Neural Information Processing Systems (NeurIPS) Workshop on Time Series*, 2017  
**[best poster award]**
1. "Robust Synthetic Control"  
 ♣ Jehangir Amjad, Devavrat Shah, **DS**  
 ○ Journal: *Journal of Machine Learning Research (JMLR)*, 2018  
 ○ 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  
 ○ MIT News

### Preprints and Works Under Review

4. "Algebraic and Statistical Properties of the Partially Regularized Ordinary Least Squares Interpolator"  
 Letian Yang, **DS**
3. "The Ordinary Least Squares Interpolator for Econometrics"  
**DS\***, Dogyoon Song\*, Peng Ding, Jasjeet Sekhon

2. "Synthetic Interventions: Extending Synthetic Controls to Multiple Treatments"  
♣ Anish Agarwal, Devavrat Shah, **DS**
1. "On Model Identification and Out-of-Sample Prediction of Principal Component Regression: Applications to Synthetic Controls"  
♣ Anish Agarwal, Devavrat Shah, **DS**

## Selected Talks

- 2025
  - Taipei Symposium and the ICSA International Conference (Taipei, Taiwan)
  - SIGMETRICS (Stony Brook)
  - MIT Stochastics and Statistics Seminar
  - Stanford Statistics Seminar
- 2024
  - IMS International Conference on Statistics and Data Science (Nice, France)
  - The Conference on Statistical Learning and Data Science (Newport Beach)
  - IMS New Researchers Conference (Portland)
  - WNAR Conference (Fort Collins)
  - The Institute of Statistical Mathematics (Tachikawa, Japan)
- 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

- 2024 USC BUAD 310: Applied Business Statistics
- 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

## Refereeing Service

Algorithmic Learning Theory, Annals of Statistics, Biometrika, Econometrica, Journal of American Statistical Association, Journal of Applied Econometrics, Journal of Machine Learning Research, Management Science, NeurIPS, Quantitative Economics

## Academic References

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