

ABHINANDAN DALAL

CONTACT INFORMATION

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ACADEMIC AFFILIATION

- **PhD in Statistics & Data Science**, The Wharton School, University of Pennsylvania
Advisor: Dylan Small Fall 2021 - Spring 2026 (Expected)
- **Master of Statistics**, Indian Statistical Institute Fall 2019 - Spring 2021
- **Bachelor of Statistics**, Indian Statistical Institute Fall 2016 - Spring 2019

PUBLICATIONS AND PREPRINTS

Published

1. Abhinav Chakraborty*, Anirban Chatterjee* and **Abhinandan Dalal*** (2024). PrIsing: Privacy-Preserving Peer Effect Estimation via Ising Model. *Proceedings of The 27th International Conference on Artificial Intelligence and Statistics (AISTATS)*, PMLR 238:2692-2700.

Manuscripts under review/revision

2. **Abhinandan Dalal** and Eric J. Tchetgen Tchetgen (2025). Partial Identification of Causal Effects for Endogenous Continuous Treatments. *arXiv:2508.13946*. Submitted to *Journal of the Royal Statistical Society: Series B*.
3. **Abhinandan Dalal**, Patrick Blöbaum, Shiva Kasiviswanathan and Aaditya Ramdas (2024). Anytime-Valid Inference for Double/Debiased Machine Learning of Causal Parameters. *arXiv:2408.09598*. Submitted to *Journal of Machine Learning Research*.
4. William Bekerman*, **Abhinandan Dalal***, Carlo del Ninno, Dylan S. Small (2024). Planning for Gold: Sample Splitting for Valid Powerful Design of Observational Studies. *arXiv:2406.00866*. Major Revision at *Biometrika*.

In preparation

5. **Abhinandan Dalal*** and Anirban Chatterjee*. Double Robust Kernel Tests for Equality and Effect - Heterogeneity of Conditional Counterfactual Distributions.
6. **Abhinandan Dalal**, Diganta Mukherjee and Subhrajyoty Roy. Detecting Reserve Price Signaling via Controlled Direct Effects: Evidence from Tea Auctions in India. (Earlier version: *arXiv:2005.02814*.)
7. **Abhinandan Dalal**, Sayak Chatterjee and Anirban Chatterjee. Doubly Double Robust Treatment Effect Estimation under Unknown Network Interference in Observational Studies.

* denotes equal contribution

8. **Abhinandan Dalal**, Jeffrey Zhang and Dylan S. Small. Partial identification in Sensitivity Analysis with Negative Control Outcomes.
9. **Abhinandan Dalal**. Three distinct kinds of robustness in network interference.
10. Manit Paul and **Abhinandan Dalal**. Estimation of causal effects using interaction effects and negative control outcomes.
11. **Abhinandan Dalal** and Sagnik Nandy. Preference Alignment of Large Language Models using Proximal Causal Inference.

Technical Reports

1. **Abhinandan Dalal**, Diganta Mukherjee and Soumendu Sundar Mukherjee (2021). An endogenous (game-theoretic) approach to explore epidemic dynamics on a network (Masters Dissertation). [Link to report](#)
2. Navonil Deb*, **Abhinandan Dalal*** and Gopal K Basak (2020). Finding Optimal Cancer Treatment using Markov Decision Process to Improve Overall Health and Quality of Life. *arXiv:2011.13960*
3. Arindam Roy Chowdhury*, **Abhinandan Dalal*** and Shubhajit Sen* (2020). Accelerography: Feasibility of Gesture Typing using Accelerometer. *arXiv:2003.14310*
4. Diganta Mukherjee, **Abhinandan Dalal** and Subhrajyoty Roy (2019). Feasibility of Transparent Price Discovery in Tea through Auction in India. *Commodity Insights Yearbook 2019, Multi Commodity Exchange of India Ltd.* [Link to article](#)

AWARDS AND ACCOLADES

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| June 2025 | Best Student Paper in Application of Statistics and Data Science , International Indian Statistical Association |
| May 2025 | George James Term Fund for American Causal Inference Conference , University of Pennsylvania |
| Dec 2024 | Nominated for Best Student Paper in Application of Statistics and Data Science , International Indian Statistical Association |
| May 2024 | George James Term Fund for International Conference on Artificial Intelligence and Statistics (AISTATS) , University of Pennsylvania |
| June 2022 | George James Term Fund for The 2022 IMS Annual Meeting , University of Pennsylvania |
| May 2021 | Nominated for Prasanta Chandra Mahalanobis Gold Medal , Indian Statistical Institute |
| Dec 2019 | Nominated for best paper at International Conference of Operations Research and Decision Sciences (ICORDS) , Indian Institute of Management, Vishakhapatnam |
| Mar 2019 | All India Rank 1 in Mathematical Statistics (MS) in the Joint Admission Test for M.Sc. 2019 (JAM) conducted by the Indian Institute of Technology(s) |
| Dec 2018 | top 25 percentile in the world "Individuals category" and best individual entry from ISI Kolkata at Simon Marais Mathematics Competition undergraduate Asia-Pacific Mathematics competition inspired by William Lowell Putnam Mathematical Competition |
| 2016 - 21 | Dean's List for Toppers , Indian Statistical Institute |

June 2016 Secured WBJEE (West Bengal Joint Entrance Examination) rank **53** in engineering entrance

INTERNSHIP EXPERIENCE

- May 2024** **Applied Scientist Intern**, SCOT Regional Forecasting, **Amazon**
Feasibility and utility analysis of Earth Mover distance optimization for regional demand forecasting using proximal causal analysis. Analysis predicts an estimated annual savings of 78million USD. Supervisors: Rahul Gopalsamy & Kenny Shirley
- May 2023** **Applied Scientist Intern**, **Amazon Web Services**
Developed anytime valid inference for causal effect estimation under double/debiased machine learning framework Supervisors: Patrick Blöbaum & Shiva Kasiviswanathan
- May 2020** **Summer@Duke Statistical Science internship** (virtual due to Covid 19)
On Designing powerful randomization for exact p-values of causal effects under network interference Supervisor: Alexander Volfovsky
- May 2020** **Research Intern at Bio-inspired Communication (BCS) Lab, Technische Universität (TU) Darmstadt**, Germany (virtual due to Covid 19)
On Moments of Causal Estimator of binary Markovian input given output in a Poisson channel Supervisor: Heinz Köppl
- May 2019** **Summer Intern at DST- Center for Policy Research at Indian Institute of Science**
Analysing usefulness of public R & D grants in India- BIRAC and SBIRI: Exploring Causal Aspects using Regression Discontinuity Design Supervisor: Venkat Nadella

TEACHING AND MENTORING

Teaching Assistantships at Penn

- Fall 2025** STAT 9210: **Observational Studies** (for Graduate Students)
- Spring 2025** STAT 5330: **Stochastic processes** (for Undergraduate Students)
- Spring 2025** STAT 1110: **Introductory Statistics** (for Undergraduate Students)
- Fall 2024** STAT 4320: **Mathematical Statistics** (for Undergraduate Students)
- Fall 2023** STAT 4300 & STAT 5100: **Probability** (for Undergraduate/Graduate Students)
- Spring 2023** STAT 9700: **Mathematical Statistics** (for Graduate Students)
- Spring 2022** STAT 521: **Applied Econometrics II** (for Graduate Students)

Mentoring Experience

- Spring 2025** **Wharton Directed Reading Program (WDRP)** mentor for *Sheyan Lalmo-hammed*
- Fall 2024** **PhD Peer program** mentor for incoming PhD student *Soham Mallick* to navigate the program and transition to Penn

- Spring 2024** **Undergraduate Research in Probability and Statistics (URPS)** mentor for *Roberto Ligeralde*, with Da Wu
- Spring 2022** **Undergraduate Research in Probability and Statistics (URPS)** mentor for *Ryan Jeong* and *Alexandru Lopotenco*, with Prof. Robin Pemantle

CONFERENCES & WORKSHOPS

- Observational Causal Inference with Unknown/Mismeasured Network Interference
 - PhD Student Seminar, Dept. of Statistics & Data Science, University of Pennsylvania, Philadelphia, PA (2025).
- Planning for Gold: Sample Splitting for Valid Powerful Design of Observational Studies.
 - Annual Conference of International Indian Statistical Association, Lincoln, NE (2025).
 - PhD Student Seminar, Dept. of Statistics & Data Science, University of Pennsylvania, Philadelphia, PA (2024).
- Role of Earth-Movers Distance as a metric for Regional Forecasting
 - Intern Presentations, Amazon Supply Chain Optimization Technologies, New York City, NY (2024).
- Anytime Valid Inference for Double/Debiased Machine Learning of Causal Parameters
 - American Causal Inference Conference, Detroit, MI (2025).
 - Annual Conference of International Indian Statistical Association, Kochi, India (2024).
 - Penn Center for Causal Inference Seminar, Philadelphia, PA (2024).
 - Young Researcher Presentations, Amazon Supply Chain Optimization Technologies, New York City, NY (2024).
 - Intern Presentations, Amazon Web Services, Santa Clara, CA (2023).
- Modeling county level firearms related fatal assaults in the United States
 - Joint Statistical Meeting, Toronto, Canada (2023).
- An endogenous approach to explore epidemic dynamics on a network
 - IMS Annual Meeting, London, UK (2022).
- Modern Statistical Challenges under a Causal Lens
 - P.C.M. Gold Medal Presentation, Indian Statistical Institute, Kolkata, India (2021).
- Feasibility of Automation in Price Setting for Tea Auction
 - International Conference of Operations Research and Decision Sciences (ICORDS), Indian Institute of Management Vishakhapatnam, India (2019).
 - XXIXth Annual General Conference on Contemporary Issues in Development Economics, Jadavpur University, Kolkata, India (2019).
 - Third International Conference on Issues in Economic Theory and Policy, Presidency University, Kolkata, India (2019).

PROFESSIONAL SERVICE

- **Reviewer** for Journal of the Royal Statistical Society: Series B, Biometrics, Journal of the American Statistical Association
- **Co-organizer** for Statistics Dept. Student Seminar 2021-22 at Penn

SKILLS

Computer Skills

- R, MS Office
- \LaTeX
- C, SPSS, SQL, Git (basic)

Language Skills

- Bengali (native)
- English, Hindi (fluent)
- Spanish (rudimentary)