

# Abhinav Chakraborty

## EDUCATION

- 2020–2025 **Doctor of Philosophy in Statistics**, The Wharton School, University of Pennsylvania.  
Advisor: [T. Tony Cai](#)
- 2018–2020 **Master of Statistics**, Indian Statistical Institute. **Specialization: Probability.**  
**Ranked 1 in M.Stat**, passed in First Division with Distinction
- 2015–2018 **Bachelor of Statistics (Honours)**, Indian Statistical Institute.  
**Ranked 1 in B.Stat**, Passed in First Division with Distinction.

## PUBLICATIONS

- 2024 **Reconciling model-X and doubly robust approaches to conditional independence testing**  
(Published at **Annals of Statistics**) [[Arxiv](#)][[Journal](#)]  
[Ziang Niu\\*](#), [Abhinav Chakraborty\\*](#), [Oliver Dukes](#), [Eugene Katsevich](#) (\*equal contribution)
- 2024 **PrIsing: Privacy-Preserving Peer Effect Estimation via Ising Model**  
(Published at **AISTATS 2024**) [[Arxiv](#)] [[PMLR](#)]  
[Abhinav Chakraborty](#), [Anirban Chatterjee](#), [Abhinandan Dalal](#)

## PREPRINTS

- 2024 **Optimal Federated Learning for Functional Mean Estimation under Heterogeneous Privacy Constraints** [[Arxiv](#)]  
[Tony Cai\\*](#), [Abhinav Chakraborty](#), [Lasse Vuursteen](#) (\*alphabetical order)
- 2024 **Minimax and Adaptive Transfer Learning for Nonparametric Classification under Distributed Differential Privacy Constraints** (Under Major Revision at **JRSSB**)[[Arxiv](#)]  
[Arnab Auddy\\*](#), [Tony Cai](#), [Abhinav Chakraborty](#) (\*alphabetical order)
- 2024 **Optimal Federated Learning for Nonparametric Regression with Heterogeneous Distributed Differential Privacy Constraints** [[Arxiv](#)]  
[Tony Cai\\*](#), [Abhinav Chakraborty](#), [Lasse Vuursteen](#) (\*alphabetical order)
- 2024 **Doubly robust and computationally efficient high-dimensional variable selection**[[Arxiv](#)]  
[Abhinav Chakraborty\\*](#), [Jeffrey Zhang\\*](#), [Eugene Katsevich](#) (\*equal contribution)
- 2023 **Federated Nonparametric Hypothesis Testing with Differential Privacy Constraints: Optimal Rates and Adaptive Tests** [[Arxiv](#)]  
[Tony Cai\\*](#), [Abhinav Chakraborty](#), [Lasse Vuursteen](#) (\*alphabetical order)
- 2023 **PriME: Privacy-aware Membership profile Estimation in networks** (Under Major Revision at **SIMODS**) [[Arxiv](#)]  
[Abhinav Chakraborty](#), [Sayak Chatterjee](#), [Sagnik Nandy](#)
- 2022 **Optimal Differentially Private Ranking from Pairwise Comparisons** [[Technical Report](#)]  
[Tony Cai\\*](#), [Abhinav Chakraborty](#), [Yichen Wang](#) (\*alphabetical order)
- 2020 **High dimensional PCA: a new model selection criterion** [[Arxiv](#)]  
[Abhinav Chakraborty](#), [Soumendu Sundar Mukherjee](#), [Arijit Chakrabarti](#)

## AWARDS AND HONORS

- 2024 **Lawrence D. Brown Best Student Paper Award**, Wharton School, University of Pennsylvania.
- 2022 & 2024 **George James Term Award**, for the 2022 and 2024 IMS Annual Meeting.
- 2020 **ISI Alumni Association J.K. Ghosh Memorial Gold Medal**, Top scorer in M.Stat program.
- 2020 **PCM Gold Medal**, Outstanding M.Stat student for best Master's Dissertation.
- 2018 **ISI Alumni Association Mrs. M. R. Iyer Memorial Gold Medal**, Top scorer in B.Stat program.
- 2018 **Nikhilesh Bhattacharya Gold Medal**, Highest marks in Statistics for B.Stat (Hons.) Program.
- 2015 **INSPIRE Scholarship**, Awarded to top 1% students in Indian School Certificate (ISC) Examination.
- 2013 Qualified for **Indian National Mathematics Olympiad (INMO) 2014** as a top-30 candidate in the Regional Mathematics Olympiad (RMO).

## INTERNSHIPS

- 2024 **Quantitative Research Intern** at Five Rings LLC, NYC  
Completed a data analysis and statistical modeling project contributing to the firm's quantitative trading strategies
- 2019 **Optimal Transport in Statistics**, with Prof. [Bodhisattva Sen](#) at Columbia University [[Report](#)]  
Studied Parametric Estimation using Wasserstein Distance and multivariate Monge-Kantorovich Depth, Quantiles and Ranks
- 2018 **Skin Lesion Classification for Melanoma Detection**, with Prof. Jian Kang and Prof. Eunjee Lee at University of Michigan  
Developed a skin lesion classification model using biomedical images, employing feature extraction, PCA, and stacking of various classifiers.
- 2017 **Form and Performance Analytics for Large Scale Online Assessments** at TCS ion [[Slides](#)]  
Investigated questions like effect of time elapsed on accuracy and the suitability of test papers.

## TALKS

- 2024 **IMS Annual Meeting**, Bochum, Germany on *Federated Non-parametric Regression* [[Slides](#)]
- 2023 **PhD Student Seminar**, University of Pennsylvania on *Optimal Distributed Private Estimators* [[Slides](#)]
- 2022 **IMS Annual Meeting**, London, UK on *High Dimensional PCA* [[Slides](#)]
- 2020 **P.C. Mahalanobis Gold Medal Presentation**, Indian Statistical Institute, on *Model Selection in High Dimensional PCA* [[Slides](#)]
- 2018 **D. Basu Memorial Presentation**, Indian Statistical Institute, on *MCMC Methods in Bayesian Inference* [[Slides](#)]

## TEACHING AND MENTORING

- 2021–24 **Teaching Assistant**: The Wharton School, The University of Pennsylvania, Philadelphia  
Courses: Introduction to Probability (STAT 4300), Probability Theory (MATH 6480), Mathematical Statistics (STAT 971), Applied Econometrics (STAT 520)
- 2023 **PhD Peers Program**: The Wharton School, The University of Pennsylvania, Philadelphia  
Mentored an incoming Wharton PhD student in navigating the program and transitioning to Penn.

## SKILLS

**Software and Programming:** R, Python,  $\text{\LaTeX}$ .