# Anirban Chatterjee

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Department of Statistics and Data Science,
The Wharton School,
University of Pennsylvania,
Room 301, Academic Research Building,
265 South 37th Street,
Philadelphia, PA 19104

Email: anirbanc@wharton.upenn.edu
Website: anirbanc96.github.io/main/
GitHub: anirbanc96

## Education

**Ph.D. in Statistics,** *The Wharton School, University of Pennsylvania, Philadelphia, United States.*
*Expected Graduation: May 2025.*
Advisor: Dr. Bhaswar B. Bhattacharya.

**Master of Statistics,** *Indian Statistical Institute, Kolkata, India.*
*Graduated: 2020.*
First Division with Distinction, Specialization: Probability.

**Bachelor of Statistics (Hons.),** *Indian Statistical Institute, Kolkata, India.*
*Graduated: 2018.*
First Division with Distinction.

## Publications

### Journal Publications

- **Anirban Chatterjee**, Bhaswar B. Bhattacharya. Boosting the Power of Kernel Two-Sample Tests. *Biometrika, 2024.*
- **Anirban Chatterjee**, Sagnik Nandy, Ritwik Sadhu. Detecting Planted Partition in Sparse Multilayer Networks. *Information and Inference: A Journal of the IMA, Volume 13, Issue 3, 2024.*
- Bhaswar B. Bhattacharya, **Anirban Chatterjee**, Svante Janson. Fluctuations of Subgraph Counts in Graphon based Random Graphs. *Combinatorics, Probability and Computing, Volume 32, Issue 3, 2023.*
- **Anirban Chatterjee**, Rajat Subhra Hazra. Spectral Properties for the Laplacian of a Generalized Wigner matrix. *Random Matrices: Theory and Applications, Volume 11, No. 03, 2022.*

### Conference Publications

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

### Preprints

- **Anirban Chatterjee**, Ziang Niu, Bhaswar B. Bhattacharya. A Kernel-Based Conditional Two-Sample Test Using Nearest Neighbors (with Applications to Calibration, Regression Curves, and Simulation-Based Inference). *arXiv:2407.16550, 2024* (Under review at *The Journal of the Royal Statistical Society, Series B*).
- **Anirban Chatterjee**, Soham Dan, Bhaswar B. Bhattacharya. Higher-Order Graphon Theory: Fluctuations, Degeneracies, and Inference. *arXiv:2404.13822, 2024* (Under review at *The Annals of Statistics*).
- **Anirban Chatterjee**, Jiaoyang Huang. Fluctuation of the Largest Eigenvalue of a Kernel Matrix with application in Graphon-based Random Graphs. *arXiv:2401.01866, 2024* (Under review at *The Annals of Applied Probability*).

## Ongoing Projects

- *A new Measure for Conditional Mean Independence with applications in Variable Selection.*
  Joint work with: Bhaswar B. Bhattacharya and Ziang Niu.
- *Difference in Difference method analysis using Quadruple Matching.*
  Joint work with: Bhaswar B. Bhattacharya, Siyu Heng, Hannah A. Jin, Bikram Karmakar and Dylan Small.
- *Asymptotics of Pattern Density in Random Permutations.*
  Joint work with: Bhaswar B. Bhattacharya, Sayan Das and Sumit Mukherjee.
- *BBP Phase Transition in the eigenvalues of Random Kernel Matrices.*
  Joint work with: Jiaoyang Huang, David Kogan and Sagnik Nandy.

## Industry Experience

**Project Team Member, TCS ion,** *Form and Performance Analytics for Large Scale Online Assessments, 2017.*

- Collaborated with a multidisciplinary team to design and implement performance analytics for large-scale online assessment platforms used by educational institutions.
- Conducted in-depth statistical analysis on assessment data, identifying key metrics to evaluate student performance across various parameters.
- Presented findings and insights to senior management, contributing to strategic decisions on improving efficacy of online assessments.

## Teaching and Mentoring

**Teaching Assistant**, The Wharton School, University of Pennsylvania.

- Fall 2023 - Mathematical Statistics (STAT 4320).
- Fall 2022 - Statistical Methodology (STAT 9610).
- Spring 2022 - Mathematical Statistics (STAT 432).

**Graduate Mentor**, *Undergraduate Research in Probability and Statistics (URPS)*, University of Pennsylvania, 2022.

## Professional Service

- Reviewer for journals: *Journal of the American Statistical Association*, *Biometrika*, *The Annals of Applied Probability*, *Bernoulli*, *Stochastic Processes and their Applications*, *Annales de l'Institut Henri Poincaré.*

## Technical Skills

- **Programming Languages**: R, Python.
- **Tools and Software**: LaTeX.

## Awards & Honors

- **J. Parker Bursk Award for Excellence in Research**, University of Pennsylvania, 2024.
- **Dean's List for Toppers**, Indian Statistical Institute, 2016 – 2020.

## Conferences & Workshops

**Bernoulli-IMS 11th World Congress in Probability and Statistics,** *Bochum, Germany, 2024.*

- Topic: Higher Order Graphon Theory: Fluctuations and Inference.

**ICSA-Canada Chapter 2024 Symposium** *Niagra Falls, Canada, 2024.*

- Topic: Higher Order Graphon Theory: Fluctuations and Inference.

**Lawrence D. Brown Student Workshop, University of Pennsylvania,** *Philadelphia, USA, 2024.*

- Topic: Higher Order Graphon Theory: Fluctuations and Inference.

**Joint Statistical Meeting,** *Toronto, Canada, 2023.*

- Topic: Clustering Network Vertices in Sparse Contextual Multilayer Networks.

**ASU Seminar, Indian Statistical Institute,** *Kolkata, India, 2023.*

- Topic: Higher Order Graphon Theory: Fluctuations and Inference.

**IMS Annual Meeting,** *London, UK, 2022.*

- Topic: Fluctuations of Subgraph counts in Graphon based Random Graphs.

**P.C.M. Gold Medal Presentation, Indian Statistical Institute,** *Kolkata, India, 2020.*

- Topic: Graphon Estimation.