Jyotishka Ray Choudhury

Curriculum Vitae

Room 806, George Tower
55 5th Street NW, Atlanta,
GA 30332, United States
jchoudhury3@gatech.edu
jyotishkarc.github.io

Education

2024 – Present **Doctor of Philosophy [Ph.D.] in Machine Learning**, **H. Milton Stewart School of Industrial and Systems Engineering (ISyE)**, **Georgia Institute of Technology**, Atlanta, GA, United States

• **Advisors:** **Prof. Ashwin Pananjady** and **Prof. Yao Xie**

- Awarded the *Ronald J. and Carol T. Beerman President's Fellowship*

2022 – 2024 **Master of Statistics [M.Stat]**, **Indian Statistical Institute**, Kolkata, WB, India

- First Division (**Specialization:** Theoretical Statistics)

2019 – 2022 **Bachelor of Statistics [B.Stat] (Hons.)**, **Indian Statistical Institute**, Kolkata, WB, India

- First Division with Distinction (Highest honors)
- Awarded the *INSPIRE Scholarship*

Broad areas of interest

- **Statistics:** High-dimensional statistics, Nonparametric statistics, Change-point detection, Missing data problems, Inference under dependent data.
- **Machine Learning:** Mathematical foundations of machine learning, Statistical learning theory, Classification, Clustering, Multi-armed bandits, Generative models.
- **Optimization:** Stochastic optimization.
- **Theory of computing:** Statistical–computational tradeoffs (Computational hardness of statistical problems).

Publications & Preprints

(∗ denotes equal contribution)

❖ Published papers:

[4] Niu, Z., Huang, Z., **Ray Choudhury, J.** and Katsevich, E. (2026). *Saddlepoint approximations for plug-in resampling.* Accepted at Biometrika, `asag063` (In press). https://doi.org/10.1093/biomet/asag063.

[3] Basu, S.*, **Ray Choudhury, J.*** and Paul, D., Das, S. (2025). *Dirichlet Process-Based Robust Clustering Using the Median-of-Means Estimator.* International Joint Conference on Artificial Intelligence (IJCAI), Main Track (pp. 4770–4778). https://doi.org/10.24963/ijcai.2025/531.

[2] **Ray Choudhury, J.***, Saha, A.*, Roy, S., Dutta, S. (2023). *Robust Classification of High-Dimensional Data Using Data-Adaptive Energy Distance.* European Conference on Machine Learning and Knowledge Discovery in Databases: Research Track (ECML-PKDD), Springer Nature Switzerland (pp. 86–101). https://doi.org/10.10 07/978-3-031-43424-2_6.

[1] Roy, S., **Ray Choudhury, J.**, Dutta, S. (2022). *On Some Fast And Robust Classifiers For High Dimension, Low Sample Size Data.* International Conference on Artificial Intelligence and Statistics (AISTATS) (pp. 9943–9968). PMLR, Volume 151. https://proceedings.mlr.press/v151/roy22a.html.

❖ Preprints:

[3] **Ray Choudhury, J.** and Pananjady, A. (2026). *Optimal average-case reductions to negatively spiked sparse PCA with applications to supervised learning.* Under review at ALT 2027.

[2] **Ray Choudhury, J.**, Verchand, K.A., Samworth, R.J., and Pananjady, A. (2026). *Assumption-lean logistic regression with missing covariates.* arXiv preprint. https://arxiv.org/abs/2610.07292.

[1] **Ray Choudhury, J.** and Xie, Y. (2026). *High-Dimensional Robust Change-Point Detection via Angular Kernel Statistics*. arXiv preprint. https://arxiv.org/abs/2605.25855.

❖ Technical notes:

[2] Niu, Z., **Ray Choudhury, J.** and Katsevich, E. (2024). *The saddlepoint approximation for averages of conditionally independent random variables*. URL: https://arxiv.org/abs/2407.08915.

[1] Mazumdar, S., **Ray Choudhury, J.** (2018). *Partition Function : Some Properties & A New Bound on* $p(n)$. hal-01815249. URL: https://hal.archives-ouvertes.fr/hal-01815249/.

Software

spacrt R package (co-author, with Z. Niu and E. Katsevich) for testing conditional independence with the saddlepoint approximation-based conditional randomization test (spaCRT). Accompanies *Saddlepoint approximations for plug-in resampling* (Biometrika, 2026). https://github.com/Katsevich-Lab/spacrt.

Honors & Awards

October, 2026 Best poster award at the *Georgia Statistics Day*, 2026.

May, 2026 Travel award for attending at the *International Workshop on Sequential Methodologies (IWSM), 2026*.

2024 – 2028 Awarded the **Ronald J. and Carol T. Beerman President's Fellowship**, on admission to the ML Ph.D. program at Georgia Tech (August 2024).

January, 2022 Selected for the **Summer Research Fellowship** by Indian National Science Academy and National Academy of Sciences, India, at the Indian Institute of Science (IISc), Bangalore, India.

August, 2019 Awarded the **INSPIRE Scholarship** by the *Department of Science and Technology, Government of India*, for securing a rank within top 1%-ile in the West Bengal Higher Secondary Examination, 2019.

June, 2019 **All India Rank 17** in the **Bachelor of Statistics (B.Stat) Admission Test** of the Indian Statistical Institute in 2019.

Talks & Presentations

[2] Invited talk at the *Center for Signal and Information Processing (CSIP), Georgia Tech.* (September 2026)

[1] Invited talk at the *International Workshop on Sequential Methodologies (IWSM)* in Washington D.C. (June 2026)

Pre-doctoral research projects & Internships

Summer 2022 **Indian Institute of Management (IIM) Bangalore**, India.

- **Project title:** Effect of Bitcoin Energy Consumption on Electricity Spot Prices using Nonparametric Multivariate Time Series Regression
- **Hosts:** *Prof. Soudeep Deb* and *Prof. Rishideep Roy*

Technical / Programming Skills

Computing R, Python, C++

Markup LaTeX, Markdown, Rmarkdown

Teaching experience & Other activities

Teaching Graduate Teaching Assistant (GTA) for ISYE-6416, ISYE-7416, ISYE-3770.

Mentoring Trained and mentored a number of students in mathematics, for the undergraduate entrance examinations of the *Indian Statistical Institute* and other colleges from 2020 to 2023.

Leadership Localization Head of the Mathematical Talent Reward Programme (MTRP), 2023, an examination on advanced high school mathematics, organized by the students of ISI Kolkata.

Co-curricular Cooking, Reading, Chess, Table Tennis, Football (Soccer).

Additional information

Languages **Bengali** (First), **English** (Professional), **Hindi** (Fluent), **Spanish** (Introductory)

Homepage **https://jyotishkarc.github.io**

ORCID 0000-0002-7070-683X

GitHub https://github.com/jyotishkarc