

Jyotishka Ray Choudhury

Curriculum Vitae

ISyE Main 439, Georgia Tech
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Education

- 2024 – Present **Doctor of Philosophy [Ph.D.] in Machine Learning**, *School of Industrial & Systems Engineering (ISyE), Georgia Institute of Technology*, Atlanta, GA, United States,
- **Advisors:** Prof. Ashwin Pananjady and Prof. Yao Xie
 - Awarded the *ISyE Beerman President's Fellowship*
 - Awarded *Ronald J. and Carol T. Beerman Fellowship* for the first year in the program
- 2022 – 2024 **Master of Statistics [M.Stat]**, *Indian Statistical Institute*, Kolkata, WB, India
- First Division (*Theoretical Statistics* Specialization)
- 2019 – 2022 **Bachelor of Statistics [B.Stat] (Hons.)**, *Indian Statistical Institute*, Kolkata, WB, India
- First Division with Distinction (Highest honors)
 - Awarded the *INSPIRE Scholarship*
- 2007 – 2019 **Secondary & Higher Secondary Education**, *Ramakrishna Mission Boys' Home High School*, Rahara, Khardaha, WB, India

Broad Areas of Interest

- **Statistics:** High-dimensional statistics, Nonparametric statistics, Change-point detection, Conditional independence testing, Inference under missing data, Analysis of dependent data.
- **Machine Learning:** Statistical learning theory, Classification, Clustering, Bandits, Reinforcement learning, Generative models.
- **Optimization:** Stochastic optimization, Distributionally robust optimization.
- **Computing:** High-performance distributed computing on CPU, GPU, and clusters.

Publications & Preprints

(* denotes equal contribution)

❖ Published Papers:

- [3] Basu, S.*, Ray Choudhury, J.* and Paul, D. and Das, S. (2025). *Dirichlet Process-Based Robust Clustering Using the Median-of-Means Estimator*. In: INTERNATIONAL JOINT CONFERENCE ON ARTIFICIAL INTELLIGENCE (IJCAI), Main Track (pp. 4770–4778). URL: <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*. In: EUROPEAN CONFERENCE ON MACHINE LEARNING AND KNOWLEDGE DISCOVERY IN DATABASES: RESEARCH TRACK (ECML-PKDD) (pp. 86–101). Lecture Notes in Computer Science, vol 14173. Springer, Cham. URL: https://doi.org/10.1007/978-3-031-43424-2_6.
- [1] Roy, S., Ray Choudhury, J., Dutta, S. (2022). *On Some Fast And Robust Classifiers For High Dimension, Low Sample Size Data*. In: INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND STATISTICS (AISTATS) (pp. 9943–9968). PMLR, Volume 151. URL: <https://proceedings.mlr.press/v151/roy22a.html>.

❖ Preprints (Unpublished/Submitted):

- [2] Niu, Z., Ray Choudhury, J. and Katsevich, E. (2024). *The conditional saddlepoint approximation for fast and accurate large-scale hypothesis testing*. arXiv preprint. URL: <https://arxiv.org/abs/2407.08911>. Submitted to *BIOMETRIKA*.
- [1] Niu, Z., Ray Choudhury, J. and Katsevich, E. (2024). *The saddlepoint approximation for averages of conditionally independent random variables*. arXiv preprint. URL: <https://arxiv.org/abs/2407.08915>.

Academic Accolades

- August, 2024 Awarded the **ISyE Beerman President's Fellowship** and **Ronald J. and Carol T. Beerman Fellowship** by the **School of Industrial & Systems Engineering, Georgia Tech**, on admission to the Ph.D. program in Machine Learning.
- January, 2022 Selected for the **Summer Research Fellowship 2022** by **Indian National Science Academy (INSA)**, 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 Qualified the **Bachelor of Statistics (B.Stat) Entrance Examination** of **Indian Statistical Institute (ISI)** with an **All India Rank 17**.
- June, 2019 Qualified the **Bachelor of Science (B.Sc)** in Math+CS Entrance Examination of the **Chennai Mathematical Institute (CMI)**, and awarded the *Sriram scholarship*.

Pre-doctoral Research Projects & Internships

- Summer 2023 **Saddlepoint Approximation to the distilled Conditional Randomization Test**
- **Supervisor:** *Prof. Eugene Katsevich*, Department of Statistics and Data Science @ The Wharton School, University of Pennsylvania, PA, USA
- Summer 2022 **Effect of Bitcoin Energy Consumption on Electricity Spot Prices using Nonparametric Multivariate Time Series Regression**
- **Supervisors:** *Prof. Soudeep Deb*, IIM Bangalore, India; *Prof. Rishideep Roy*, University of Essex, England; *Prof. Sayar Karmakar*, University of Florida, USA
- Summer 2022 **Robust Classification of High-Dimensional, Low Sample Size Data**
- Summer 2021 • **Supervisor:** *Prof. Subhajit Dutta*, Indian Institute of Technology (IIT) Kanpur, India
- Winter 2020 **Dirichlet Process-based Automatic Clustering using Median-of-Means**
- **Supervisor:** *Prof. Swagatam Das*, ECSU, Indian Statistical Institute, Kolkata, India

Reading Projects

- Spring 2023 **Introduction to Multi-Armed Bandits: Algorithms & Statistical Theory**
- **Supervisor:** *Prof. Pan Xu*, Duke University, NC, USA

Technical / Programming Skills

- Computing** R (Advanced), Python (Intermediate), C++ (Intermediate)
- Markup** \LaTeX , Markdown, Rmarkdown
- Web App** Shiny in R, HTML, CSS
- Shell Script** Bash

Teaching Experiences & Other Activities

- Teaching** Graduate Teaching Assistant (GTA) for ISYE-6416 and ISYE-7416 in Fall 2025.
- 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, both in online and offline modes.
- 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** Reading, Table Tennis, Football (Soccer), Cooking.

Additional Information

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

Interests Learning about science, technology, history, wildlife, languages, etc.

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Scholar <https://scholar.google.com/citations?user=NhTxu3MAAAAJ&hl=en>

GitHub <https://github.com/jyotishkarc>
