

Education

- 2023 - 2025 **Master of Statistics [M.Stat]**, Indian Statistical Institute, Kolkata, India.
- Currently in 2nd year
 - Specialization: Theoretical Statistics
 - Dissertation Advisors: [Prof. Aaditya Ramdas](#) and [Prof. Soumendu Sundar Mukherjee](#)
- 2020 - 2023 **Bachelor of Statistics [B.Stat] (Honours)**, Indian Statistical Institute, Kolkata, India.
- Secured 91.10% in aggregate.
 - Secured the **1st position** in the B.Stat program among a batch of 40 peers.
- 2018 - 2020 **Higher secondary education**, Manindra Nath High School, Cooch Behar, WB, India.
- Marks in Higher Secondary Examination: 98.40%
 - Secured a **rank of 8** out of 11,02,921 candidates
- 2010 - 2018 **Secondary education**, Sunity Academy, Cooch Behar, WB, India.
- Marks in Secondary Examination (Madhyamik): 97.29%
 - Secured a **rank of 9** out of 7,61,583 candidates

Areas of Interest

My research interests span a broad spectrum within algorithms, theory, and applications of statistics and machine learning. Here is a list of topics I have recently explored or am currently exploring:

- **Statistics:** Nonparametric Statistics, Game-theoretic statistics, High dimensional statistics, Sequential Testing, Change-point detection and localization, Causal Inference.
- **Machine Learning:** Conformal Prediction, Classification, Clustering Techniques, Reinforcement Learning and Multi-armed bandits, Neural Networks, Deep learning.

Published papers/articles

Published at Journals

- 2024 **A. Saha**, N. R. Pal. *Group-Feature Selection Using a Neural Network With Group Lasso Regularization and Controlled Redundancy*. Accepted to appear in the **Neurocomputing**, 2024. URL: <https://doi.org/10.1016/j.neucom.2024.128596>
- 2024 **A. Saha**, A. Ramdas. *Saha and Ramdas' discussion of "Poisson-focus" by Ward, Dilillo, Eckley and Fearnhead*. Accepted to appear in the **Journal of the American Statistical Association (JASA)**, 2024. URL: <https://doi.org/10.1080/01621459.2024.2402957>

Published at Conferences

- 2024 **A. Saha**, A. Ramdas. *Testing Exchangeability by Pairwise Betting*. Published at the **International Conference on Artificial Intelligence and Statistics (AISTATS)**, 2024. (ORAL) URL: <https://proceedings.mlr.press/v238/saha24b.html>

- 2023 J. Ray Choudhury*, **A. Saha***, S. Roy, S. Dutta. *Robust Classification of High-Dimensional Data using Data-Adaptive Energy Distance*. Published at the **European Conference on Machine Learning and Knowledge Discovery in Databases: Research Track. (ECML PKDD), 2023**. URL: https://doi.org/10.1007/978-3-031-43424-2_6

Preprints

- 2024 **A. Saha**, A. Ramdas. *Robust likelihood ratio tests for composite nulls and alternatives*. Submitted at **IEEE Transactions on Information Theory**. URL: <https://arxiv.org/abs/2408.14015>

Summer Internships (On-site)

- Summer, 2024 Summer internship at the **Department of Statistics and Data Science, Carnegie Mellon University, Pittsburgh**
Supervisor: [Prof. Aaditya Ramdas](#), Carnegie Mellon University, Pittsburgh
Brief description of the work: Designed a new sequential anytime valid robust likelihood ratio test for composite nulls and alternatives. Details in the [paper](#).
- Summer, 2023 **Big Data Summer Institute (BDSI), School of Public Health, University of Michigan, Ann Arbor**
Supervisor: [Prof. Rahul Ladhanja](#), University of Michigan, Ann Arbor
Brief description of the work: Studied causal inference and worked with electronic health records (EHR) data.
- Summer, 2022 **Summer Research Fellowship Program (SRFP) organised by Indian National Science Academy (INSA)**
Supervisor: [Prof. Manjunath Krishnapur](#), Indian Institute of Science (IISc), Bangalore
Brief description of the work: Studied some special topics on probability theory including probability in high dimensional space, Markov Chain Monte Carlo, mixing time of Markov chains, Random walks and electrical networks, Hidden Markov Model.

Other Academic Experiences

- Dec 2018 - Jan 2019 Participant of **Indian National Mathematical Olympiad Training Camp (INMOTC)** at *Indian Statistical Institute, Kolkata*
- Apr - May 2019 Participant of **International Mathematical Olympiad Training Camp (IMOTC)** organized by *Homi Bhabha Centre for Science Education (HBCSE), Mumbai*
- May, 2020 Participant (as a member of the senior batch) of **International Mathematical Olympiad Training Camp (IMOTC)** organized virtually by *Homi Bhabha Centre for Science Education (HBCSE), Mumbai*
- Jul, 2021 Participant of **Mathematical Summer in Paris** (online edition) organised by *CNRS/ Université Paris-Saclay*

Academic Accolades

- 2023-2024 Received **prize money for outstanding performance in all semesters (so far) in M.Stat program** at the Indian Statistical Institute
- 2023 Received **Mrs. M.R. Iyer Memorial Gold Medal** for outstanding performance in B.Stat (Hons.) program (2020-2023) at the Indian Statistical Institute
- 2023 Received **Nikhilesh Bhattacharya Memorial Gold Medal** for the best performance in Statistics in B.Stat (Hons.) program (2020-2023) at the Indian Statistical Institute
- 2023 Received **Usri Gangopadhyay Memorial Medal** offered to the best female student in B.Stat (Hons.) program (2020-2023) at the Indian Statistical Institute
- 2023 Secured **overall highest marks** in every year of the B.Stat program (2020-2023) at the Indian Statistical Institute
- 2020-2023 Received **prize money for outstanding performance in all semesters in B.Stat** where it was offered
- 2021 & 2022 Received **Mukul Chaudhuri Cash Award** as the best female student in both 1st year and 2nd year of B.Stat program from Indian Statistical Institute (ISI), Kolkata
- 2020 – **Kishore Vaigyanik Protsahan Yojana (KVPY) fellowship** recipient
- 2020 Received the **offer for direct admission with fellowship** in the Bachelor of Science (B.Sc) program at **Chennai Mathematical Institute**
- 2020 Secured **100 Percentile Score in Mathematics Paper in JEE Main**
- 2019 Selected to compete for **European Girls' Mathematical Olympiad (EGMO)** by Homi Bhabha Centre for Science Education, Mumbai
- 2019 Selected as **Indian National Mathematical Olympiad (INMO)** Merit Awardee
- 2018-19 Selected as a **Kishore Vaigyanik Protsahan Yojana (KVPY) fellow**
- 2018 Qualified **Regional Mathematical Olympiad (RMO)**

Talks & Presentations

- July, 2023 Presentation as a part of the BDSI program at the University of Michigan, Ann Arbor
Title: Machine Learning for Healthcare
- Sept, 2023 Invited talk for **D. Basu Memorial Gold Medal Award** at the Indian Statistical Institute, Kolkata
Title: Navigating the Challenges of High-Dimensional Low Sample Size Data: A Two-sample Test and a Novel Classification Approach [\[Slides\]](#)
- July, 2024 Presentation as a part of the internship at Carnegie Mellon University, Pittsburgh
Title: Huber-Robust Anytime-Valid Sequential Probability Ratio Test [\[Slides\]](#)

Technical / Programming Skills

- **Programming:** R , Python, C, C++
 - **Markup:** \LaTeX , HTML, Markdown
 - **Web App:** Shiny in R
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