Purushottam Saha
Master of Statistics
Indian Statistical Institute, Kolkata

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EDUCATION

Master of Statistics (Hons.)	Indian Statistical Institute, Kolkata
Currently pursuing Third Semester	*July 2024 – Current*
Bachelor of Statistics (Hons.)	Indian Statistical Institute, Kolkata
Graduated with Distinction (76%)	*Sept. 2021 – May 2024*

WORK EXPERIENCE

Goldman Sachs — May '25 – July '25

Worked as a Quant Intern, in Risk Economics Strats

- Revamped **Ongoing Monitoring framework** for 1700+ Scenario Design models across Rates, FX, Equity variables.
- Designed statistical tests and **assessed materiality** of breaches through automated filter and exception repository.
- **Automated documentation** of breaches with thresholds, reduces significant manual intervention every cycle.
- Implemented **Impact Analysis tools** to estimate dollar impact of model changes and performance breaches from firm's sensitivities.

Games24x7 — Oct '24 - Apr '25

Worked as a Research Intern, in Data Science and AI team

- Developed and implemented **combinatorial heuristics** for a given hand in Rummy and implemented heuristic driven strategies using them **outperforming benchmarks**.
- Designed 2-player and multiplayer versions of **Elo rating for Rummy** for efficient matching and skill benchmarking.
- Established **statistically significant skill** element in Rummy, in empirical as well as large scale simulation studies.

PROJECTS

Energy Market Modelling — March 2023 – Current — *Guide: Prof. D. Mukherjee*

- Performed **Spot Price** and **Day Ahead Price** modelling in the market **Elspot**, **NordPool**, incorporating network structure of grids (Joint modelling).
- Currently working on efficiency of the market through out the progress of their coupled pricing algorithm **EUPHEMIA**.

Robust PCA and Background Foreground separation — April 2025 — *Guide: Dr. M. Mukherjee*

- Explored **Robust PCA** and **Stoch-PCA** techniques in context of matrix separation problem.
- Studied **Convex Envelop** to transform NP-hard, non-convex matrix separation problem into tractable solution.
- Implemented mentioned algorithms and **Online RPCA** for real-time separation in dynamic, slowly-moving backgrounds.

Prediction of Brain Stroke: Working with imbalance — Nov. 2022 — *Guide: Dr. S. K. De*

- Used **Imputation** techniques, **Synthetic Sampling** methods, and proposed a **version** of **Logistic Regression** to get decent accuracy, reducing **Misclassification** errors on highly **imbalanced** data.

AWARDS AND ACHIEVEMENTS

Cleared **ISI Entrance**, **JEE Advanced**, **JEE Mains**, **WBJEE** securing 99.5% + percentile in each	2021
Received **Late Ranu Sen Memorial Award**	2021
Secured top 1% rank in **PRMO, RMO, NSEA**	2017,2019,2021
Secured **First** rank from **District** in **NMMSE**	2016-17
Received Scholarship ranking **Second** in **Mathemagic**	2018
Won several awards from various mathematics competitions (inc. **IFOMG**, **SumIt**, **MathGeek**, **STEMS** etc)	

TECHNICAL SKILLS

Languages: Python, R, C, LaTeX, SQL, HTML

Software/Libraries: Git, Numpy, Pandas, Scikit-Learn, TensorFlow, Keras, Django

Statistics and AI: Regression and Diagnostics, Econometrics, Time Series, Classification, Reinforcement Learning

EXTRACURRICULAR ACTIVITIES

Held **Joint Secretary** position for Integration 2024, conducted **MathGeek, MTRP** as part of Integration 2023

Taught 200+ students for mathematics olympiads and entrance examinations

Enjoy playing chess, various card and board games (e.g. poker, bridge, monopoly etc), swimming, table tennis