SREEJIT ROY

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Education

1. **Indian Statistical Institute** — Kolkata, India
   Master of Statistics — Sep'21 - Jun'23
   - Graduated in first class.
   - Applied statistics specialisation.
2. **St. Xavier's College (Autonomous)** — Kolkata, India
   Bachelor of Science (Honours) in Statistics — Jul'17 - Oct'20
   - Graduated in first division.
3. **Hindu School** — Kolkata, India
   Higher Secondary — 2015 - 2017
   - Specialised in Physics, Mathematics, Statistics, and Chemistry.

Work experience

1. **Standard Chartered Bank** — Bangalore, India
   Business Analyst, SCMAC — Jul'23 - present
   - Responsible for creating retail banking propensity models and segmentation strategies for various markets. Created models that are actively being used for various business use cases for a leading southeast Asian market (Singapore).
   - Presently responsible for analysing the performance of digital sales and marketing banners deployed through Pega in Singapore, offering strategic recommendations for optimising banner implementation to improve customer engagement and conversion rates.
   - Created an end to end pipeline for data creation using open source tools that reduced model delivery timelines by 67%. This project was adopted in 13 markets and was instrumental in paving the way for judicious use of resources towards strategic initiatives and decision making while bringing down the data error margin to almost zero.

Awards

1. **Sabyasachi Roy Memorial Gold Medal** — 2023
   Awarded for doing the best project work among all M.Stat. second year students.

Research interests

High-dimensional statistics, Matrix estimation, Random matrix theory, Extreme value theory, Bayesian methods, Optimisation techniques.

Projects

1. **Statistical Inference in Matrix Completion Problems** *(Aug'22 - May'23)*
   (Final year project. Guide: *Dr. Arindam Chatterjee*)
   - Studied universal singular value thresholding and derived some limiting properties.
   - Discussed reconstructing binary matrices. Implemented FIST algorithm.
   - Reformulated matrix completion as a penalised estimation problem, studied asymptotic properties. Compared with similar setups.
   - Studied robustness aspects in connection with matrix completion.
   - Introduced a novel matrix completion method taking into account user preferences.
   - Won the best project award among all M.Stat. final year students.
2. **Forecasting Methods for Non-Stationary Time Series** *(Apr'23)*
   (Course project. Guide: *Dr. Raju Maiti*)
   - Theoretical analysis of advanced methods like unit root process, exponential smoothing, fuzzy time series, state space neighbourhood method, and SVM.
3. **The Jacobi Stochastic Volatility Model** *(Mar'23)*
   (Course project. Guide: *Dr. Diganta Mukherjee*)
   - Discussed how this performs better than Heston in various settings. Performed simulations to exhibit this.
4. **Covariance Structure Estimation In High-Dimension** *(Jun'22 - Aug'22)*
   (Summer project. Guide: *Dr. Arindam Chatterjee*)
   - Explored the challenges of estimating population covariance structures from sample covariance matrices in high-dimensional data, focusing on issues like singularity and eigenvalue distortion.
   - Also examined limiting distributions of sample covariance matrices and eigenquantiles in such settings.
5. **Density of the Wishart Distribution** *(Jun'22)*
   (Course project. Guide: *Dr. Deepayan Sarkar*)
   - This course project is of theoretical interest and is an attempt at understanding various methods for arriving at the density of the Wishart distribution.
6. **Genome sequencing Using Travelling Salesperson Problem** *(May'22)*
   (Course project. Guide: *Dr. S.K. Neogy*)
   - Exhibited how the problem of genome sequencing can be boiled down to a travelling salesperson problem and discussed studies in a similar line for various animals.
7. **A Simulation Study on Mann Whitney Statistic** *(Apr'22)*
   (Course project. Guide: *Dr. Isha Dewan*)
   - Explored various empirical properties of Mann Whitney U statistic. Compared it with various parametric counterparts and established cases where it performs better.
8. **A Study on Physical Fitness** *(Dec'21)*
   (Course project. Guide: *Dr. Swagata Nandi*)

- Model fitting, outlier detection and other regression diagnostics, remedies to violation of assumptions, finally choosing a model best describing the data.

9. **A Brief Study On MLEs In Non-Closed Form** *(Oct'19 - Apr'20)*
(B.Sc. dissertation. Guide: *Dr. Surabhi DasGupta*)
   - Explicitly derived log-likelihood equations for distributions like Cauchy and Gamma.
   - Generated different random samples and used Newton Raphson method for obtaining estimates for the unknown parameter for both the distributions.
   - Performed nonparametric bootstrapping for estimating variance for both the distributions and compared them with the theoretical FCRLB.

10. **A Generalisation of Banach's Matchbox Problem** *(Mar'19)*
(Article with D. Chakraborty, N. Kal)
   - Formulated a theoretical generalisation for the classical Banach's matchbox Problem.
   - Exhibited an application to memory allocation problem.
   - The article got published in the 11th edition of Prakarsho, the annual departmental magazine of the Department of Statistics, St. Xavier's College (Autonomous), Kolkata.

Technical skills

- **Programming languages:** R, Python, C, C++, SQL
- **Big data technologies:** Apache Spark
- **Statistical software:** SAS
- **Machine learning & AI:** scikit-learn, TensorFlow, Keras

Scholastic achievements

- Secured all India rank **22** in **M.STAT. entrance exam**. 2021
- Recipient of **INSPIRE SHE** by DST, GoI. 2017-2020
- Placed among top 1 percent in **WB HS 2017**. 2017