

EDUCATION			
Year	Qualification	Institution	Percentage/ CGPA
2022 (Expected)	M.Sc. Statistics	Indian Institute of Technology, Kanpur	9.45 (till Sem 3)
2019	B.Sc. (Hons) Statistics	Presidency University, Kolkata	7.40
2016	Higher Secondary (WBCHSE)	St. Lawrence High School, Kolkata	89.2%
2014	Secondary (WBBSE)	St. Lawrence High School, Kolkata	91.7%

TECHNICAL EXPERIENCES

- Student Developer, Google Summer of Code** (Jun - Aug, '21)
Project Title: Improvements to nls | **Organization:** The R Project for Statistical Computing
Mentors: Prof. John C. Nash, University of Ottawa & Dr. Heather Turner, University of Warwick
 - Authored an **R package nlsCompare** that compares the accuracy of characteristics, like gradient and sum of squared residuals, derived using existing or new R functions for nonlinear least-squares.
 - Wrote **tests** for **nlsj**, an interim R package developed to improve **nls()** functionalities, to ensure robust code structure.**Programming Language:** R | **Link:** <https://summerofcode.withgoogle.com/archive/2021/projects/6324769313521664>
- Data Science Analyst Intern, Accenture Solutions Pvt. Ltd.** (May - Jul, '21)
Project Title: Smart Decision Making using AutoML | **Programming Language:** Python | **Framework:** Dash
 Developed an **AutoML**-based tool with **GUI** that allows users to:
 - use multiple data pre-processing methods and select among classical and state-of-the-art algorithms;
 - use model optimization and model blending, interactively visualize model diagnostics, and make predictions based on the best optimized model.

M.SC. PROJECT

- Understanding Confidence Intervals in Adaptive Markov Chain Monte Carlo (AMCMC)** (Aug - Nov, '21)
Guide: Prof. Dootika Vats, IIT Kanpur | **Programming Language:** R | **GitHub:** <https://github.com/ArkaB-DS/MTH598A>
 - Reviewed the literature on the kernel estimators of asymptotic variance and confidence intervals in AMCMC.
 - Verified conditions under which a **CLT** holds via simulation, using an example of multivariate logistic regression.

COURSE PROJECTS

- Understanding Nonparametric Multi-Modal Regression via Kernel Density Estimation** (Feb, '22)
Guide: Prof. Shubhra S. Dhar, IIT Kanpur | **Programming Language:** R | **GitHub:** github.com/ArkaB-DS/NPmodalReg
 - Reviewed estimation using the **mean-shift algorithm**, geometry and consistency in Nonparametric Modal Regression.
 - Constructed confidence sets using bootstrap and bandwidth selection of the KDE using the size of prediction sets.
- Effect of COVID-19 on the Indian Stock Market** (Oct - Nov, '21)
Guide: Prof. Amit Mitra, IIT Kanpur | **Programming Language:** R
 - Fitted **ARIMA** models to log-returns of **Nifty 50** stock market closing prices split by market capitalization.
 - Performed **Engle-Granger's Co-integration test** on the closing prices and the daily cases of Covid-19 for two periods - the onset and the first wave of the pandemic in India.
 - The pandemic's effect on the Indian stock market was not statistically significant based on the **Granger causality test**.
- Atmospheric Ozone Concentration and Meteorology in LA Basin, 1976 – A Regression Study** (Mar - Apr, '21)
Guide: Prof. S. Mitra, IIT Kanpur | **Programming Language:** R | **GitHub:** github.com/ArkaB-DS/regressionProjectIITK
 - Performed **EDA** on the Ozone dataset to understand the effect of meteorology in predicting Ozone concentration.
 - Confirmed multicollinearity, heteroscedasticity, normality and auto-correlation with appropriate tests and took corrective measures for each, developing three parametric predictive models.
 - Improved **R²** by **8%** and **RMSE** by **62%** by using the nonparametric **Alternating Conditional Expectation** algorithm.

SKILLS

- PROGRAMMING:** R, Python, C
- SOFTWARE:** Microsoft Excel, Microsoft PowerPoint, LaTeX

SCHOLASTIC ACCOLADES

- Recommended for the **Academic Excellence Award** (2020 - 2021) by the SSPC, IIT Kanpur.
- Secured **AIR 17** out of 3473 candidates in IIT-JAM, 2020 in the Mathematical Statistics paper.
- Recipient of the **Swami Vivekananda Merit-Cum Means Scholarship** by Director of Public Instruction, Govt. of West Bengal.

RELEVANT COURSEWORK

COMPLETED	Regression Analysis Time Series Analysis Markov Chain Monte Carlo Statistical Simulation and Data Analysis Computer Programming and Data Structures (in C)
ONGOING	Statistical & AI Techniques in Data mining Multivariate Analysis Robust Statistical Methods

POSITIONS OF RESPONSIBILITY

- Coordinator, STAMATICS, Department of Mathematics and Statistics, IIT Kanpur** (Jul '21 - present)
 - Leading a team of 9 executives to conduct talks, propose collaborations, and bring in student opportunities.
- Student Nominee, Departmental Under-Graduate Committee, IIT Kanpur** (Sept '21 - present)
 - Representing the UG students in the department's proposals and decisions pertaining to the academic rules and curriculum, advising them about academic opportunities, and handling problems faced in their academic programs.