

# Debarshi Chakraborty

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## Personal Profile

Pursuing a PhD in Statistics, interested in data analysis and theoretical statistics simultaneously. Wish to pursue an academic career ahead.

## Education

### Iowa State University

PhD in Statistics

- Graduate Teaching Assistant
- Graduate Research Assistant

Ames, IA, USA

August 2023-July 2028 (Expected)

### Indian Statistical Institute

Master of Statistics

- Graduated with distinction
- Specialized in Applied Statistics

Kolkata, India

Sept 2021 - June 2023

### St. Xavier's College (Autonomous)

Bachelor of Science (Hons) in Statistics

- Graduated with first division

Kolkata, India

July 2017 - October 2020

### Ariadaha Kalachand High School

Standard V- Standard XII

- Specialised in Physics, Chemistry, and Mathematics with Biological Sciences

Kolkata, India

May 2009 - June 2017

## Research Interests

Inference for High Dimensional Data, Statistical Genomics, Graphical Models, Bayesian Methods, Pattern Recognition, Nonparametric Inference, Time Series

## Projects and Presentations

### A Study of Non Gaussian Graphical Models

Indian Statistical Institute

- This is my masters final year project. A comprehensive study and literature review of existing methods, discussion on their usability and limitations in different scenarios like large sample and higher dimension. Experiments and Simulations with real and artificial data.
- Mentor : Dr. Arindam Chatterjee, Stat Math Unit, ISI Delhi

Kolkata, India

Spring 2023

### Cluster Analysis of Wine Count Data

Indian Statistical Institute

- Discriminating between types of wine by looking at their chemical composition. Comparison between several clustering methods.
- Mentor : Srijit Mukherjee, PhD student, Pennsylvania State University

Kolkata, India

Summer 2023

### Knockoffs and its Applications

Indian Statistical Institute

- Understanding the idea of knockoff in variable selection, compared with shrinkage methods and multiple testing, experiments with data.
- Mentor : Dr. Anil Kumar Ghosh, Stat Math Unit, ISI Kolkata

Kolkata, India

Spring 2023

### On a Robust Correlation Coefficient

Indian Statistical Institute

- Review of a correlation coefficient which performs better in presence of outliers, discussion of limitations with data based experiments.
- Mentor : Dr. Ayanendranath Basu, Interdisciplinary Statistics Research Unit, ISI Kolkata

Kolkata, India

Spring 2023

### Bayesian Failure Probability Prediction of Space Shuttle Data

Indian Statistical Institute

- Estimating the probability of failure of a space shuttle launch. use of Bayesian Methods due to small size of data.
- Mentor : Dr. Sourabh Bhattacharya, Interdisciplinary Statistics Research Unit, ISI Kolkata

Kolkata, India

Fall 2022

### Predicting Heart Disease using Supervised Machine Learning

Indian Statistical Institute

- Classifying an individual whether he/she is prone to heart disease based on several medical test results.
- Mentor : Bilol Banerjee, PhD student, Stat Math Unit, ISI Kolkata

Kolkata, India

Fall 2022

## A Study on Gaussian Graphical Models

Indian Statistical Institute

Delhi, India

Summer 2022

- Reading project. Exposure to the idea of graphical models and comprehensive literature review of gaussian graphical models.
- Mentor : Dr. Arindam Chatterjee, Stat Math Unit, ISI Delhi

## A Comparative Study between some Classification Methods

Indian Statistical Institute

Delhi, India

Spring 2022

- Understanding support vector machines, K-nearest neighbours and investigating about their usability over parametric methods like linear and quadratic discriminant analysis in different situations. Experiments are done with both artificial and real data.
- Mentor : Dr. Deepayan Sarkar, Stat Math Unit, ISI Delhi

## A Study on Kernel Density Estimation

Indian Statistical Institute

Delhi, India

Spring 2022

- Limitations of histogram, demonstration of the idea of KDE, choice of kernels, bandwidths and other properties using simulation.
- Mentor : Dr. Isha Dewan, Stat Math Unit, ISI Delhi

## Regression Analysis of Petrol Consumption Data

Indian Statistical Institute

Delhi, India

Fall 2021

- Model fitting, outlier detection and other regression diagnostics, remedies to violation of assumptions, finally choosing the model.
- Mentor : Dr. Swagata Nandi, Stat Math Unit, ISI Delhi

## Modelling the UEFA Champions' League

St. Xavier's College (Autonomous)

Kolkata, India

Spring 2020

- This is my bachelor's final year project. We try to build a simple mathematical model for the number of goals scored in the UCL over the years, which may be extended for forecasting purposes. Mathematical curve fitting for trend analysis and modeling the rest using ARMA.
- Mentor : Dr. Ayan Chandra, Department of Statistics, SXC Kolkata

## Technical Skills

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**Programming** R, Python, C++, C, HTML

**Softwares** RStudio, Microsoft Excel, Minitab, LaTeX, Tableau

## Academic Achievements

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2023 **AIR 7**, Graduate Aptitude test for Engineering (GATE), Paper : Statistics

India

2021 **AIR 18**, Indian Statistical Institute entrance Examination, Paper : M.Stat

India

2020 **AIR 32**, Indian Statistical Institute entrance Examination, Paper : M.Stat

India

2017 **Received Inspire Scholarship**, Department of Science and Technology, Government of India

India

## Extra Curricular Activities

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**Table Tennis** Professional table tennis player. Current USATT rating is 2109 and I play for the varsity table tennis team

**Cricket** A die hard cricket lover since childhood, college cricket tournament being the best memory till date

**Art** Received Shilpa Visharad degree in Art in the year 2016 from Sarbabharatiya Sangeet-O-Sanskriti Parishad

**Swimming** Professionally trained in swimming

**Teaching** Taught Statistics and Mathematics to undergrads for different competitive exams

**Resources** Maintaining an initiative Statistics Repository on my webpage to compile online free resources for learning Statistics

## Languages

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**English** Professional proficiency

**Bengali** Native proficiency

**Hindi** Professional proficiency

**I hereby declare that all the information provided above are true to best of my knowledge.  
References available upon request.**