Subhadeep Chaudhuri | **19I190010**
Industrial Engineering & Operations Research | **M.Sc.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 28-10-1998

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2022	9.36
Graduation	University of Calcutta	St. Xavier's College, Kolkata	2019	8.4
Graduation Specialization: Statistics				
Intermediate	WBCHSE	Jodhpur Park Boys' School	2016	95.00%
Matriculation	WBBSE	Nava Nalanda High School	2014	93.43%

Academic Accolades

- Secured **Department Rank 1** in M.Sc., Industrial Engineering and Operations Research (Batch of 2019-2022)
- Recipient of **INSPIRE scholarship** from Dept. of Science & Technology, Govt. of India for the period 2016-2019
- Awarded **AP grade** (**3** out of **189** students) in Statistical ML & Data Mining for **exceptional** overall performance

Professional Experience

Innovaccer | Data Science Intern (Received PPO for commendable performance) | May - July, 2021
Keywords: Risk Analytics, Risk Identification, Predictive Analytics **Tools**: Python 3, Dask, Sklearn
Objective: To ascertain individuals with rising risk of ailment, requiring greater healthcare needs and higher expenditure

- Established a **pipeline** of **data cleaning**, **EDA** and **feature extraction** (existing & derived) from raw data of patients
- Developed an **Ensemble Classifier** model for classifying patients with **rising risk**, ready for deployment to production

Data Sutram | Data Science Intern | August, 2020
Keywords: Location Intelligence, Customer Identification, Geospatial Queries **Tools**: Python 3, Sklearn
Objective: Theoretical modeling and interpretation of KPI using client data + in-house curated location intelligence data

- Formulated **theoretical model** to estimate **expected sales potential** of a location and drive analysis-based **decision**
- Implemented XGBoost Classifier to **identify** & **categorize** potential target customers for **improving client revenue**
- Designed a **theoretical model** to ascertain **Risk Factor** of **payment default** associated to loan applications by SMEs

Academic Projects

Machine Learning Based Matchmaking | Aug - Dec, 2020
Course Project: Statistical ML & Data Mining | Guide: Prof. A. Tewari

- Ideated a **start-up** delivering ML-based product for B2C market | **Idea**: Match-making for dating leveraging psychology
- Implemented neural network model to predict relevant scores based on **Big 5 personality traits** in behavioural analysis
- Built **interface** (front end) for user data collection | Handled **project management** using GANTT & RASIC charts

The Lottery Ticket Hypothesis: Training Sparse, Trainable Neural Networks | Aug - Dec, 2020
Course Project: Deep Learning - Theory & Practice | Guide: Prof. P. Balamurugan

- Substantiated the existence of a significantly (>85%) pruned network having comparable accuracy with original network
- Validated the hypothesis over LeNet and Feed forward MLP networks over partitions of the MNIST dataset in PyTorch
- Inspected the plausibility of **transfer learning** lottery tickets obtained from a dataset to another of the same domain

Deep Learning for NLP : Bengali-English Translation using XLNet | Jan - May, 2021
M.Sc. Phase-II project | Guide: Prof. P. Balamurugan

- Reviewed existing NLP models like BERT & XLNet | Started working on **Language Model for Bengali** using XLNet
- Developed **interface** (front end) to collect **user translations** from Bengali to English for model training & fine-tuning
- Built the **corpus of Bengali tokens**, using the SentencePiece tokenization scheme, using $\sim$ **10M** sampled sentences

Application of Multi-Armed Bandit in Wireless Communication System | Aug - Dec, 2020
M.Sc. Phase-I project | Guide: Prof. M.K. Hanawal

- Reviewed literature on **multi-armed bandit** problems | Studied energy source's **optimal power** selection strategy that **maximizes** energy efficiency in a Wireless Powered Communication Network (WPCN) as multi-armed bandit problem
- Proposed a **2-stage algorithm** for **jointly optimizing** the source's power level & node's rate of transmission in WPCN

Simulation of an (M,L) Inventory Management System | Jan - May, 2021

Course Project: Simulation Modeling and Analysis | Guide: Prof. Jayendran V.

- Simulated an (M,L) inventory management system analyzing long-run cost under perishability & backordering of items
- Evaluated optimal (M,L) combination maximizing mean monthly profit under multiple designs such that fill rate $\geq 99\%$

Hyperband: A Novel Bandit-based Approach to Hyperparameter Optimization | Jan - May, 2021

Course Project: Online Learning | Guide: Prof. M.K. Hanawal

- Reviewed & implemented **Hyperband**, an improved version of **Successive Halving** (a robust, general-purpose solution for non-stochastic best arm identification problem) to find **optimal hyperparameter** configuration by pure exploration

When 2 Chains Combine: Blockchain in Supply Chain | Jan - May, 2021

Course Project: Quantitative Models for Supply Chain Management | Guide: Prof. N. Rangaraj

- Formulated a model to enable the players in a multi-echelon supply chain to transact assets using blockchain technology
- Improved upon privacy concerns existing in supply chain solutions by introducing concept of sub-networks and channels

Minimum Sample Size Required for Asymptotic Convergence to Normality | 2017-2018

105^{th} Indian Science Congress, 2018 | Guide: Prof. Ayan Chandra | St. Xavier's College, Kolkata

- One of 44 papers accepted for **postal presentation** at the **105^{th} Indian Science Congress**, in Mathematical Sciences
- Probed **convergence** of **moment-based** statistics to Normality based on samples from varying probability distributions
- Simulated & observed **fastest convergence** to normality for nearly **symmetrical** & **mesokurtic** sample distributions

Training Bootcamp

Northwestern University
USA, April-May 2020

"What do Your Data Say" - in association with NSF-Simons Center for Quantitative Biology
(A 5-week online bootcamp on quantitative and statistical techniques for data analysis)

- **One of 600 students & researchers** selected from all over the world for the bootcamp
- Conducted in-depth **statistical analyses** on biomedical research dataset using Python 3

Key Courses/ Skills

Language/ Software	• Python • R • SQL • AMPL • Scilab • Minitab • AnyLogic • LaTeX • MS-PowerPoint
Machine Learning	• Deep Learning-Theory & Practice • Statistical ML & Data Mining • Online Machine Learning
Operations Research	• Simulation Modeling & Analysis • Optimization Techniques • Quantitative Models for SCM
Statistics	• Probabilistic Models • Linear Systems • Probability & Stochastic Processes

Positions of Responsibility

Department Coordinator | Institute Student Companion Program, 2020-21 | IIT Bombay

- Worked in a **team of 177 people** & coordinated **e-orientation** at the department level for new PG entrants of 2020
- **Mentored** 6 students throughout the year, helping them on **academic** & **non-academic** fronts during the pandemic

Director (Grounds) | Xavotsav 2018 | SXC, Kolkata

- **Headed** a team of **40 student volunteers** at Xavotsav '18, the annual cultural fest of St. Xavier's College, Kolkata
- Responsible for efficiently managing **10,000+ visitors** on campus ground over **3 days** along with the volunteer team

Head (Backstage) | Epsilon-Delta 2019 | SXC, Kolkata

- Led a team of **10 students** at Epsilon-Delta 2019, the Dept. of Statistics' annual fest at St. Xavier's College, Kolkata
- Coordinated the **entire backstage activities** with team for conducting **guest talks** & **culturals** on day of the event

Teaching Experience

Teaching Assistant | Course: Engineering Statistics | Dept.: IEOR, IIT Bombay | Jul - Dec, 2021

- Conducted **weekly sessions** (tutorial & doubt clearing) for a **batch of 50+ students** in collaboration with other TAs
- Responsible for **evaluation** of assignments & answer scripts, organizing **crib sessions** to address issues of the students

Extracurricular Activities

Sports	• **Winners** in **Table Tennis** PG General Championships, 2019-2020 | **Team IEOR** member • **Finished** 3^{rd} in Inter-Hostel **Football** General Championships, 2019-2020 | **Team Tansa** House
Culturals	• **Finished** 3^{rd} in Inter-IIT **Scrabble** League, 2020 amongst 6 participating IITs | **Team IIT-B**
Social Outreach	• Taught 30 underprivileged children over 4 days under **NSS Social Visits** from SXC, Kolkata
My Interests	• Football • Table Tennis • Pencil Sketching | **New Interests** • Playing Ukulele • Cardistry