

Manisankar Baral

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❖ Career Objective:

To analyze situations in various fields based on statistics, data science, and finance and machine learning research. I want to explore my knowledge in teaching and have idea of OBE system, co-po mapping, and NEP syllabus in higher education platforms.

❖ Work experience

- Currently working as, a Teaching Assistant (faculty) in Statistics & Data Science at the School of Basic and Applied Sciences at Adamas University.
- Worked as an AI/ML developer at ASPIC Innovations Private Limited for a specific project.
 - Was responsible for ideating, designing, and implementing the AI models
 - Worked on image classification, segmentation, object detection, etc.
 - Was involved in various algorithms for edge detection, ROI detection, etc.
- Worked as Subject Matter Expert in Statistics at Nerdy Turtlez.

❖ Educational qualifications

- PhD (Pursuing) in Applications of Statistical and Machine Learning Methods in Finance from Adamas University.
- M.Sc. (Tech.) Statistics and Data Science from Adamas University, Kolkata (2020-22).
- B.Sc. (Mathematics) from IGNOU (2015-18).
- Class 12 (H.S +2 stage) from Tripura Board of Secondary Education (2010).
- Class 10 (Madhyamik) from Tripura Board of Secondary Education (2007).

❖ Courses taught

Probability and Statistics, Data Mining, Exploratory Data Analysis, Operation Research, Engineering Mathematics, Advanced Engineering Mathematics, Index Numbers and Time Series, Statistics for Economics, Introduction to Data Mining, Data Mining practical, Exploratory Data Analysis and Visualization practical, etc.

❖ Research interest

- Machine learning and Statistical approaches in finance.
- Exploratory Data Analysis (EDA)
- Applications of statistics

❖ Domain knowledge

R, SQL, Python Programming, Machine Learning and Applications, Statistical Modelling, Database Management System, image classification, object detection.

❖ Achievements

- Received Govt scholarship after Madhyamik (class 10) result.
- Received Covid Amphan scholarship at Adamas University.
- Selected on Dean's list at Adamas University in 2021.

❖ Projects Completed

1. *Creation of AI/ML models to detect specific features in medical images*

Summary: This project involved creating a software that uses AI/ML models for diagnosing features in medical images like X-ray, CT, USG etc. I was involved as an AI/ML developer and worked with the team to analyze images and run pilot training and testing on the images using different AI models to identify the desired features. I used algorithms like Watershed, Otsu (Binary Thresholding, Inverse etc.) for activities like Mask Creation, Region of Interest detection, Edge/boundary detection, Feature identification etc.

2. *Novel models for classification to overcome the class imbalance problem in recommended system.*

Supervisor: Dr. Vaskar Sarkar, Assistant Professor, Dept of Mathematics, Adamas University, Kolkata

Summary:

In the early 1990s, recommendation systems began to emerge as efficient, dependable, and effective methods for automatically picking products and offering them to users based on their preferences or likeliness. Many academics have proposed unique recommendation algorithms in the recent decade that may utilize user preferences expressed across single or many criteria. Conversely, conventional approaches, on the other hand (including collaborative filtering, which is now the most developed and extensively used method) face obstacles such as data sparsity, diversity, class imbalance, and other concerns, all of which contribute to the models' poor performance. The improvised rating and combined decentralized linear regression model (IRCDLRM), the linear regression-based reduced binary rating combined decentralized model (LRBRCDM), linear regression model using the popularity index model (LRMPI) are three novel recommendation systems suggested in this project. We tested our suggested models against standard approaches (such as the Decision Tree classifier, Random Forest classifier, KNN classifier, and Random Forest regressor) in terms of prediction accuracy (MAE, MSE, RMSE) and classification accuracy (F1-measure, precision, recall, and accuracy) on the 1M datasets of "MovieLens."

3. *Unemployment Rate in India: A Study on before-after COVID-19 Scenario.*

Summary:

The Covid-19 pandemic has affected all areas of our lives. The shutdown measures put an end to the activities of many entrepreneurs, who had to lay off their employees. Thus, the Covid-19 pandemic is a major reason behind the rising unemployment. This is also the case in India. Since March 2020, when the first measures came into force, the registered unemployment rate has been rising. In this paper, the authors have discussed the matter of the unemployment rate and the numbers in each state of India before & after the covid-19 scenario.

❖ Internship

Completed a one-month Internship at NIT Arunachal Pradesh.

Topic: Intrusion detection system using K-nearest neighborhood with ANOVA over CIRA-CIC-DOHBRW-2020.

Summary:

Technology advances like big data, cloud computing, the internet of things, etc. create a significant amount of data every fraction of a second. It is therefore challenging for IDS to evaluate enormous amounts of data and extract just the most crucial information for identifying the traffic or data as normal or an attack. IDS must monitor any anomalous patterns and traffic to identify and respond to any actions that are not permitted by the system's policies. IDS has a comprehensive data processing issue due to its huge and asymmetric datasets. Therefore, several approaches have been put out to solve this issue. In this case, the K-nearest neighborhood with ANOVA feature selection has been used for the intrusion detection system.

❖ Online Certification Courses

1. Completed some Coursera courses
 - (i) Data Science Math Skills-Duke University
 - (ii) Mathematics for Machine Learning: Linear Algebra- Imperial College of London
 - (iii) Covid 19 Contact Tracing-Johns Hopkins University
 - (iv) Programming for Everybody (Getting Started with Python)- University of

Michigan

2. Completed some LinkedIn courses
 - (i) Python vs. R for Data Science
 - (ii) Insights on Data Science: Lillian Pierson

❖ **Paper presentation**

Presented paper at National seminar

Conference: RAMA 2017

Institution: University of Calcutta, Department of Mathematics

Paper title: Crime against women in the North Eastern States: what does the trend reveal?

Time: March 2017

Location: Kolkata, West Bengal

❖ **Workshops & Webinars attended**

1. Attended One Week Online International FDP on Machine Learning and Computer Vision: Applications, Research Challenges (MLCV 2020) under TEQIP-III at NIT Silchar during August 24-28, 2020.
2. Attended a 5-Day Workshop on Data Science and Its Applications, organized by Adamas University from 26th April- 30th April 2022.
3. Attended a 5-Day online FDP on Financial Mathematics, SPDE Theory, Mathematical Modelling and Current Numerical Trends organized by School of Advanced Sciences (SAS), VIT-AP University, India, held from 24th to 28th June 2024.
4. Attended some webinars related to Statistics and Data Science.

❖ **Language Proficiency**

English, Hindi, Bengali

❖ **Hobbies**

Listening & playing Rabindra sangeet & Indian classical music.

❖ **Personal profile**

Father's Name : Mr. Monathpal Baral
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Referees

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2. Dr. Arindam Kundu

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Declaration of Authenticity

I declare hereby that the information provided above is true to the best of my knowledge and belief.

Date: 10th April 2025

Place: Kolkata, West Bengal

Manisankar Baral