

YASH GUPTA

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Education

Indian Statistical Institute, Kolkata
Master of Statistics, Computational Statistics

Aug 2022 – Jun 2024
AIR-22 ISI MSTAT

Banaras Hindu University, Varanasi
Bachelor of Science (Hons.)- Statistics, Mathematics

Jul 2019 – Jun 2022
9.01 CGPA

Experience

HSBC | *Analyst- Data and Analytics*

[Aug'24-Present]

- **Optimized Auto-Close Time for IN Market:** Identified root causes of elevated customer average wait time and **reduced auto-close time by 12 minutes**, improving customer satisfaction scores by 10% and enabling agents to handle 8% more queries daily.
- **Automated KPI Dashboard:** Developed and implemented code to **generate weekly dashboard to track KPIs** like NPS, RCR and AWT; **eliminating hours of manual reporting** weekly and enabling leadership to **prioritize workflow adjustments across 4 markets**.
- **Predictive Modeling for NPS Score :** Utilized Multiple Linear Regression to build a predictive model for NPS Score, using FCR and AWT as key variables in four different markets. Which helped **quantify the impact of operational metrics on customer satisfaction** and provided recommendations to optimize bot journey.
- **Data Preprocessing and Feature Extraction:** Developed data preprocessing pipelines to clean, normalize, and structure unstructured customer-agent conversational data using **pandas, datetime, and multiprocessing**. Extracted key features and KPIs for analysis across markets, time periods, and granularity.

Projects

Anomaly Detection Using Statistical Data Depth | *Prof. Amita Pal*

[Feb-May'24]

- Worked on an advanced method to detect anomalies based on the concept of **Statistical Data Depth**.
- Explored data-depth based methods such as **Spatial Depth, Projection Depth, Kernelised Projection Depth** etc.
- Utilised the idea of **kernelised PCA** to reduce dimensionality and enhance computational efficiency.
- Outperformed popular ML algorithms like **Isolation Forest & LOF** by **3%** on the benchmark data sets.

Regression Analysis for Prediction of Health Insurance Premium Cost | *Prof. Deepayan Sarkar*

[Oct'22]

- Implemented **Multiple Linear and Robust Regression Models** to attain good prediction and verified their validity.
- Assessed and improved the model using **VIF, Box-Cox Transformation and Residual + Component Plot**.
- **Reduced Median Absolute Deviation** on testing data by **34%** using Robust Regression Methods (Huber, Bi-square).
- Fitted Resistant regression models **Least Trimmed Squares (LTS)** and **Least Median Squares (LMS)**.

Supervised ML Techniques for Analyzing Biting Fly Data | *Prof. Swagata Nandi*

[Apr'23]

- Applied **Box-Cox Transformation** for skewed predictor variables with an appropriate choice of tuning parameter.
- Employed Supervised Machine Learning algorithms like **Linear/Quadratic Discriminant Analysis & KNN**.
- Applied logistic regression and achieved model accuracy close **80%** on the test dataset.
- Reduced the dimension of feature space using **Principal Component Analysis**.

Simulation Study on Non-Parametric LMPR Tests for Scale | *Prof. Isha Dewan*

[Mar'23]

- Developed new tests by modifying **Median, WRS and Mann-Whitney** tests to test difference in scale parameters.
- Analyzed performance of **Capon, Klotz and Mood** test statistics.
- Reduced data generation time by 4x using Parallel Processing (Foreach package in R).

Relevant Coursework

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|-------------------------|--------------------------|----------------------------|-----------------------|
| • Regression Techniques | • Financial Econometrics | • Time Series Analysis | • Bayesian Inference |
| • Probability Theory | • Quantitative Finance | • Non-Parametric Inference | • Pattern Recognition |

Technical Skills

- **Languages:** Python, R, SQL.
- **Tools & Libraries:** Numpy, Pandas, Scikit-Learn, Tidyverse, Lattice, MS Excel, PowerPoint, Markdown, & Jupyter lab.
- **Interests:** Statistical Modeling, Regression Methods, Probability, Machine Learning & Deep Learning.

Achievements

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|---|--------|
| • Secured All India Rank 22 in ISI MStat 2022 Entrance Exam. | [2022] |
| • Secured All India Rank 45 in IIT JAM MS 2022. | [2022] |
| • Secured position in top 1% students of Higher Secondary State Board Examination. | [2019] |
| • Secured 1st position in the class continuously from Primary to Higher Secondary Education. | [2017] |