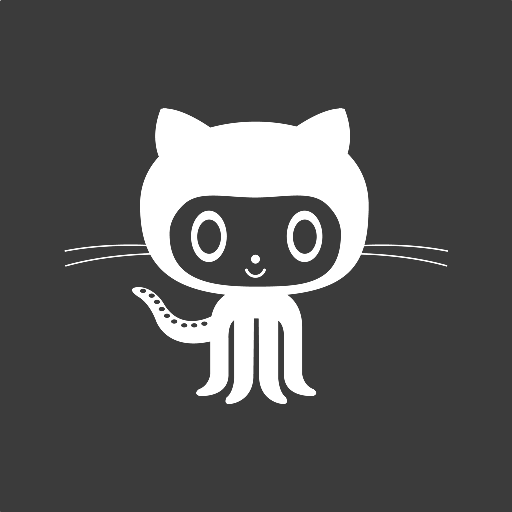
**A blue logo with a black background

Description automatically generated Saket Kumar**

**Master of Business Analytics | | Indian Institute of Science, Bangalore**

* 8744-027-158  [saketkumar@iisc.ac.in||bond.saketkumar@gmail.com](mailto:saketkumar@iisc.ac.in||bond.saketkumar@gmail.com)  [saket06](https://www.linkedin.com/in/saket06)  [Saketkr06](https://github.com/Saketkr06)

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| --- | --- | --- | --- |
| **YEAR** | **DEGREE** | **INSTITUTE** | **RESULT** |
| **2024\*** | **M. Mgt** | **Indian Institute of Science, Bangalore** | **8.3/10\*** |
| 2022 | B. Tech | University of Agricultural Sciences| Bangalore | **8.47/10** |
| 2017 | 12TH (C.B.S.E) | Indian Public School | Purnia Bihar | **84.6%** |
| 2015 | 10th (C.B.S.E) | Millia Convent English School | Purnia Bihar | **10/10** |

**Education**

**Internship**

* **­Bosch Private Limited *June ‘23-July ‘23***
* **Division : Mobility Solutions-AI for Industrial Applications.**

**Project 1: EV Range Prediction System**

* **Developed an accurate and reliable range prediction system for electric vehicles (EVs) to alleviate anxiety and enhance user experience. We proficiently handled real-world EV data from the BMW i3(60 ah), encompassing environmental, vehicle, battery, and heating circuit data.**
* **Data Analysis and Preprocessing:** Conducted **Exploratory Data Analysis (EDA)** to identify correlations and significant features affecting EV range. Employed data preprocessing techniques, including **feature selection** and normalization, to optimize model performance**.**
* **Model Selection and Evaluation:** Utilized M**ultiple Linear Regression, Random Forest**, and **Deep Neural Network** algorithms for EV range prediction and employed **Recursive Feature Elimination (RFE)** to identify crucial features for improved model accuracy**.**
* **Environmental and Seasonal Variability:** Addressed the impact of environmental factors on range prediction, demonstrating accurate model performance across different seasons**.**
* **Statistical Analysis and Hypothesis Testing:** Conducted **Kolmogorov-Smirnov** and **Chi-square tests** for dataset compatibility validation.
* **Results and Model Performance:** Using the Random Forest algorithm, attaining an R-squared of up to **0.96**. Produced models with **Mean Absolute Error (MAE)**, of **0.006** indicating precise range predictions.
* **Cross-Trip Validation:** Demonstrated understanding of dataset variability through cross-trip validation, illustrating model limitations and season-specific predictions.
* **Practical Deployment and Application**: Created a **Digital twin model** to simulate real-world EV range prediction scenarios and deployed the optimised model on **AWS EC2**, showcasing practical application and technical skills.

**Project 2: Compatibility-Based Vehicular Ad-Hoc Reliable Routing**

* **Incorporated AI and ML techniques into vehicular networks to enhance proactive communication and predictive decision-making, contributing to developing the Internet of Vehicles (IoV).**
* **Objective**: Developed a reliable routing mechanism addressing multi-hop ad hoc communications challenges and dynamic high-mobility environments**.**
* **Approach:** Implemented a proactive approach to **predicting connectivity duration** between vehicles and emphasised the integration of connectivity duration as a crucial parameter for route selection**.**
* **Solution:** Designed a **machine learning-based routing** protocol that accurately estimates the duration of potential routes, facilitating optimal route selection for vehicles**.**
* **Evaluation:** Assessed **five machine-learning classification** techniques using the Open Street Map dataset to evaluate the effectiveness of the proposed scheme**.**
* **Outcome:** Conducted comprehensive simulations to demonstrate the success of the proposed scheme in eliminating short-lived routes**.**
* **Comparison:** Conducted a comparative analysis of machine learning techniques based on established metrics such as **accuracy, computational time, misclassification rate**, and **F1 score.**

**Achievements**

* Secured **All India Rank 6** (AIR) in **Gate 2022**. ***Mar ‘2022***
* Awarded **National Talent Scholarship** for the tenure of my **bachelor’s degree**. ***Aug ‘2018-Jul ‘2022***

**Projects**

* **Dog vs. Cat Prediction Project:**
* Developed a deep learning model using **Convolutional Neural Networks** (CNNs) to classify images as dogs or cats.
* Employed transfer learning by fine-tuning a pre-trained model on a large dataset, significantly boosting model performance.
* Conducted extensive data augmentation and preprocessing to enhance model robustness and accuracy.
* Achieved high classification accuracy, demonstrating proficiency in computer vision and transfer learning techniques.
* **Portfolio optimisation**
* Collected real-time data from **NSE** for Portfolio Optimization using Monte Carlo Simulation in Python.
* Calculated the **Minimum Variance, Maximum Sharpe Ratio and Maximum Return Portfolio**.
* Used the Quadratic Optimization technique to form **the Efficient Frontier** and **compared the result with the Monte Carlo approach**.
* **Quora Question Pair Similarity**
* Developed an NLP-driven model to assess **question pair similarity on Quora**, enhancing content relevance and user engagement through accurate duplicate detection.
* Extracted various text-based features, including **TF-IDF, and word embeddings**, to represent the textual content of the questions.
* Implemented various **machine learning** and **deep learning models**, such as **Logistic Regression, Random Forest** and Three Layer Neural Networks, to predict question pair similarity.
* Utilized evaluation metrics like Accuracy, Precision, Recall, F1-score, and ROC-AUC to assess model performance and fine-tune hyperparameters.
* **Customer Behavior Analysis on E-Commerce Data:**
* Performed **EDA** using **PowerBI** to summarise the Purchase Data of Amazon customers.
* Used **K-Means Clustering** for segmenting the customers based on similar psychographic and demographic traits.
* It provided relevant **Marketing Solutions** based on the inferences generated from the analysis.

**Skills and Course work**

* **Languages:** Python, R
* **Core Courses:** Applied Probability and Statistics, Finance and Accounts, Managerial Economics, Applied Operations Research, Regression and Time Series Analysis
* **Extras:** Machine Learning – Cornell University, Deep Learning – NPTEL (IIT Madras)

**Position of Responsibility**

* **Class Representative (COAE, UAS):** Acting as the point of contact between professors and students and representing the views.

***Jan ‘2020-Jul ‘2022***

* **Student Volunteer** for **National Service Scheme. *Aug ‘2018-Jul ‘2020***