

SUMAIYA AFREEN

Data Analytics — Machine Learning — AI Applications

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Profile Summary

Second-year CS student (CGPA 9.2) at BSA Crescent Institute & IIT Madras, skilled in Python, SQL, and Machine Learning. Built predictive models and AI-powered applications across healthcare, automotive, and space domains.

Education

B. S. Abdur Rahman Crescent Institute of Science and Technology

2024 – 2028

B.Tech in Computer Science and Engineering — CGPA: 9.2/10

Chennai, India

Indian Institute of Technology Madras

2024 – Present

B.S. in Data Science and Applications (Online)

Chennai, India

Projects

Orbit IQ – Space Debris Collision Prediction — Python, Scikit-learn, FastAPI, Next.js, TypeScript  GitHub

- Trained an ML classification model on an orbital dataset of **3,000+ tracked space objects**, achieving **87% collision-risk prediction accuracy** with Random Forest outperforming **3 baseline models**.
- Built a real-time FastAPI backend and Next.js dashboard to visualize collision probabilities, reducing manual orbital analysis time by an estimated **60%**.

Parkinson's Gait and Tremor Analysis — Python, OpenCV, MediaPipe, Scikit-learn, Streamlit  GitHub

- Developed a multi-feature classification pipeline using gait cadence, stride variance, and tremor frequency from **1,200+ patient samples**, achieving **91% detection accuracy** with SVM.
- Automated Parkinson's screening indicators from raw sensor data using Pandas and NumPy, reducing feature-engineering time from hours to under **2 minutes** per dataset.

Car Price Prediction — Python, Pandas, NumPy, Scikit-learn, XGBoost  GitHub

- Developed a machine learning pipeline on **15,000+ used car records**, comparing **5 regression algorithms** for price prediction.
- Selected XGBoost as the final model with an **R² score of 0.94** and identified **7 high-impact features** affecting resale value.

Technical Skills

Programming Languages: Python, SQL, Java, C++

Data Analysis & Visualization: Microsoft Excel, Power BI, Tableau, Pandas, NumPy

Machine Learning: Scikit-learn, Regression, Classification, Feature Engineering, Data Preprocessing, EDA

Web Development: HTML5, CSS3, React.js, Responsive Web Design

Tools: Git, GitHub, VS Code, Jupyter Notebook, Google Colab

Leadership & Activities

Secretary - Crescent Readers Club

2025 – Present

Coordinating club activities, reading sessions, and member engagement initiatives.

Design Head - GIR WebOps Team (IIT Madras)

2024 – 2025

Designed promotional assets and managed visual branding for technical events and online platforms.

Certifications & Technical Engagement

Oracle Cloud Infrastructure 2025 AI Foundations Associate – Oracle

Data Analytics Essentials – Cisco Networking Academy

SQL (Intermediate) – HackerRank

- Participated in multiple AI, Machine Learning, Data Science, and Software Development hackathons, workshops, and technical events.