Mahboob Alam

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Professional Summary

Machine Learning, Data Science and Data Analysis professional with hands-on experience across data preprocessing, exploratory data analysis, statistical modeling, and applied machine learning. Strong foundation in Python, SQL, and ML experimentation with experience translating analytical outputs into structured, stakeholder-ready insights through academic and government-sponsored research projects.

Technical Skills

Analytics & Statistics: Exploratory Data Analysis, Descriptive & Inferential Statistics, Feature Engineering, Data Validation
Machine Learning: Classification, Regression, Cost-Sensitive Modeling, Model Evaluation
Tools & Frameworks: Python (Pandas, NumPy, Scikit-learn), PyTorch, SQL, Jupyter Notebook, Google Colab
Visualization & Reporting: Matplotlib, Seaborn

Experience

Research Intern – Machine Learning (Sponsored Project under Ministry of Earth Sciences) Jun 2025 – Present
Defence Institute of Advanced Technology (DIAT–DRDO), Pune

- Worked on large-scale image datasets involving data preprocessing, quality validation, and exploratory analysis.
- Designed experimental pipelines for model training, validation, and internal testing.
- Evaluated models using statistical metrics including Dice coefficient, mIoU, and pixel accuracy.
- Conducted error analysis and interpreted quantitative results to support technical conclusions.
- Documented analytical findings and communicated results to senior researchers and stakeholders.

Projects

Business Metric–Driven Churn Intervention Analysis

- Analyzed customer-level data for 7,000+ records using exploratory data analysis and segmentation techniques.
- Combined churn probability, customer lifetime value, and cost metrics to support business prioritization.
- Identified high-risk, high-value customer segments while excluding low-impact groups.
- Conducted sensitivity analysis across multiple cost scenarios to validate robustness of insights.

Medical Insurance Cost Analysis

- Cleaned and analyzed demographic and health-related datasets to identify cost-driving variables.
- Applied regression models and evaluated performance using R^2 and residual analysis.
- Translated statistical outputs into actionable business insights.

Publication

Alam, M. et al., "Physics-Informed Attention U-Net (PIAUNet): An Enhanced U-Net Framework for Underwater Segmentation in Aquaculture," Proceedings of Cutting Edge Technologies in Advanced Computing, Nov 2025. (Peer-reviewed; journal publication under process)

Education

M.Tech in Data Science 2024 – 2026
Defence Institute of Advanced Technology (DIAT–DRDO), Pune
CGPA: 7.65

B.Tech in Computer Science and Engineering 2019 – 2023
RBSSIET, Rewari

Certification

The Data Science Course: Complete Data Science Bootcamp 2025 – Udemy