MD RAFAT HOSSAIN

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PROFESSIONAL SUMMARY

Ambitious Junior AI Engineer with a strong academic background in data science, machine learning, and data analytics. Experienced in designing and optimizing ML pipelines for predictive modeling and risk analytics using Python, SQL, and advanced data visualization. Proficient in leveraging statistical analysis and real-time data processing to support algorithmic decision support systems, with hands-on experience in financial data analysis and NLP-driven solutions. Currently pursuing an MSc in Data Science, eager to contribute technical expertise to high-frequency financial prediction and sustainable investing frameworks.

EDUCATION / COURSES

• Pace University, Seidenberg School of Computer Science and Information Systems | NYC, NY

Master of Science (MSc) in Data Science (Data Analytics and Machine Learning Concentration)

Dec 2025

• University of Texas | Austin, Texas

Post Graduate Program (PGD) in AI ML (Business Applications Focus)

Sep 2024

• American International University-Bangladesh | Dhaka, Bangladesh

Bachelor of Science (BSc) in Computer Science (Software Engineering Concentration) – Dean’s List Honors

May 2021

RELEVANT COURSEWORK

• Scalable Databases, Machine Learning, Introduction to Data Science, Advanced Machine Learning,

Introduction to Neural Networks, Natural Language Processing, Computer Vision, Data Mining, Big Data & Analytics

SKILLS

• Programming: Python; familiarity with C++, Java, PHP, JavaScript

• Data Processing & Analytics: Pandas, NumPy, matplotlib, Seaborn, Tableau, Power BI, Excel

• Machine Learning: Supervised & Unsupervised Algorithms (logistic regression, decision trees, clustering, PCA, ensemble methods), time-series modeling concepts (stationarity, lag features, moving averages, autocorrelation), feature engineering, hyperparameter tuning

• Libraries & Frameworks: scikit-learn, XGBoost, TensorFlow; basic exposure to PyTorch

• Data Wrangling: ETL operations, data cleaning, transformation, wrangling

• Tools & Technologies: Git version control, Docker, Kubernetes, Jupyter Notebook, VS Code, Google Colab, AWS EMR, SQL (MySQL, PostgreSQL), MongoDB, Hadoop ecosystem (MapReduce, Hive, Spark)

• Additional: Familiarity with API integrations and basic model deployment concepts using FastAPI or Flask

PROFESSIONAL EXPERIENCE

MC Solutions — Remote (Slack)

AI & Data Systems Engineer (formerly Backend Web Application Engineer)

Dec 2021 - Jun 2022

• Engineered and integrated modular web application components to enhance functionality for a SaaS law firm platform, contributing to continuous integration and agile sprint planning

• Collaborated with cross-functional teams to support data-driven backend development, ensuring reliable code reviews and version control practices for scaling operations

PROJECTS

Financial Fraud & Money Laundering Data Analysis

Nov 2024 - Dec 2024

• Developed an ML pipeline using Python, Neo4j, and Cypher to detect fraudulent transactions and mitigate risks associated with money laundering

• Built an ETL framework with Pandas for efficient extraction, transformation, and loading of financial data into graph databases for enhanced risk analytics

Credit Card User Churn Prediction

Jan 2024 - Feb 2024

• Designed and validated a predictive model using Python in Jupyter Notebook, achieving 89% accuracy in identifying high-risk churn customers

• Employed advanced sampling and cross-validation techniques to address class imbalance and enhance model robustness, analogous to risk analytics in capital markets

Article Categorization System Using NLP

May 2024 - Jun 2024

• Automated article classification for media companies with 90% accuracy, applying Random Forest and NLP techniques to streamline content processing

• Optimized the system for scaling (10x article processing) with hyperparameter tuning and real-time data integration, highlighting capabilities in processing structured and unstructured data

NLP-Based Support Ticket Categorization and Automated Response System

Mar 2024 - Apr 2024

• Built an NLP-driven support system in Python that reduced response times by 30% and managed textual data categorization using sentiment analysis

• Integrated model outputs with real-time dashboards to support automated decision-making and customer retention strategies

Introduction to Neural Networks: SVHN Digit Recognition

Aug 2024 - Sep 2024

• Engineered a neural network model with TensorFlow and Adam optimizer, achieving 76% accuracy for digit classification

• Applied techniques like Batch Normalization and Dropout to tackle overfitting and improve model generalization, relevant to scalable ML system deployment

LEADERSHIP

Assistant General Secretary (Research and Development), AIUB Computer Club

Oct 2019 - Sep 2020

• Led initiatives to advance technical projects and foster innovation within the club, supporting collaborative research and development efforts in AI and data analytics