

# MD RAKIB HASAN

An aspirational graduate, equipped with extensive 3.5+ years of expertise in Data Science. Gregarious and eager to connect with new people, enjoys continuous learning in LLMs, GenAI and ML/DL to solve business challenges. Diligent and driven by performance-based growth, seeking opportunities to apply skills in EDA, Big Data, Cloud Platforms, and Advanced ML/DL/LLMs problems to contribute to business growth and operational efficiency.



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## Areas of Expertise

### DATA HANDLING & MODELING

Data Analysis (Python, R, SQL, Bash)  
Predictive Analytics & Forecasting  
Exploratory Data Analysis (EDA)

### MACHINE LEARNING & AI

Machine Learning (Scikit-learn)  
Deep Learning (TensorFlow, PyTorch)  
Large Language Models LLMs (LangChain)  
Model Complex Protocol (MCP)

### BIG DATA & CLOUD COMPUTING

AWS, GCP, Azure  
Batch Processing (Apache Spark)  
Cost Optimization & Metrics  
MLOps in the Cloud (GCP, Azure)

### DATA PIPELINE & DEPLOYMENT

Data Integration & Pipelines (ETL/ELT)  
Evaluation & Deployment (KubeFlow)  
CI/CD Tools (Docker, Kubernetes)  
MLOps Workflow (Airflow)

### BUSINESS INTELLIGENCE

Business Intelligence (Power BI, Tableau)  
Customer Analytics & Segmentation  
Data-Driven Sales Strategies  
A/B Testing

### ADDITIONAL TECHNICAL SKILLS

Server (Linux, Win Server)  
Presentation & Public Speaking  
Communication & Team Collaboration

## Certification / Training



- Mathematics for Machine Learning
- Google IT Support Professional
- Google IT Automation With Python
- Architecting Google Compute Engine
- Google Cloud: Cloud Architect
- DataOps with Apache Iceberg using Spark, Nessie, and Dremio

## Extracurricular Activities

Secretary (Technical), **Geo-Biome Club**  
**University of Dhaka**

Participant, **Stanford University**  
**Code In Place 2024**

Runnersup in Dhaka Division  
**BCB Young Tigers Cricket (2017)**

## Educational Qualification

### University of Dhaka; B.Sc in Soil, Water & Environment

Jan 2020- Feb 2025

CGPA: 3.62/4.00;  
Research Project: Health Risk Assessment from Heavy Metals in Dried Fish of Dhaka.

### Higher Secondary Certificate (HSC)

Graduated in 2019

Letter Grade: A (Science), Government Bangla College

### Secondary School Certificate (SSC)

Graduated in 2017

Letter Grade: A+ (Science), Lalmatia Housing Society School & College

## Professional Experience

### Stanford University; Code In Place 2025

Section Leader

March 2025 - May 2025

- Led the class of 9 international students to teach CS106A/B program of Stanford University Syllabus. Provided detailed feedback and grading on assignments and exams.
- Collaborating with Dr. Chris Piech & Dr. Mehran Sahami to enhance course materials.

### Atomic Energy Center; Bangladesh Atomic Energy Commission

Research Assistant

Mar 2024 - Nov 2024

- Developed and deployed deep learning models using TensorFlow and Scikit-Learn for water quality forecasting, enhancing environmental monitoring of the Turag, Buriganga, Shitalakshya, Dhaleshwari, and Balu rivers.
- Analyzed water pollution dynamics and documented findings in 7+ study, contributing to 10+ journal articles.

### University of Dhaka; Department of Soil, Water And Environment

Research Assistant

Mar 2023 - Nov 2024

- Led 15+ analytical chemistry and deep learning projects to assess the impact of soil, sediment, and water quality on human health, analyzing over 500 samples across the Gangetic Delta.
- Used 5+ mathematical and statistical approaches to improve soil organic carbon (SOC) model accuracy by 15%. Contributed to 7+ peer-reviewed journal articles.

## Project

### Customer Behavior Analysis for E-Commerce Using Machine Learning



- Segmented customers into frequent buyers, occasional shoppers, and browsing customers using K-means and Agglomerative clustering for a Upwork client.
- Implemented marketing strategies, boosting engagement and conversion rates, resulting in a 21% profit increase.
- Applied algorithms and programming in 5 e-commerce apps. Tools used: Python, Pandas, Scikit-learn, Matplotlib, Seaborn.

### Data-Driven E-Commerce Business Analysis for Strategic Growth



- Analyzed e-commerce sales, profit, and customer behavior to optimize business strategies for 3 Fiverr client.
- Identified that consumer segment contributed 54% of profit, corporate region accounted for 28% of sales and revealed 15% temporal sales seasonal variation.
- Tableau live dashboards integrating with PostgreSQL and pipeline applied in 4 e-commerce sites.

Interpersonal Skills

Languages

English (Fluent)  
Bengali (Native)  
Hindi (Fluent)

Communication Skills

Expert in communication with senior leadership and decision making teams.

Programming (4Y)

Python                R  
SQL                    Bash

Database (3Y)

PostgreSQL        MongoDB  
MySQL                SQLite

Data Handling (4Y)

Pandas                Numpy  
A. Spark                Excel

Dashboarding / Plotting (3Y)

PowerBI                Tableau  
DataStudio            Superset  
Seaborn                Matplotlib

Machine Learning (3Y)

Scikit-Learn        TensorFlow  
PyTorch                Spark MLlib

Cloud Platform (3Y)

AWS                    GCP  
Azure                    DigitalOcean

CI / CD Framework (2Y)

Docker                Kubernetes  
Terraform            Github Action

Operating Platform (3Y)

Linux                    Win Server  
Unix

App Development (1Y)

Django                Flask

Project

Bank Customer Segmentation for Targeted Loan Marketing Using Power BI

- Analyzed bank customer data to identify loan-targeted segments based on gender, education, marital status, and age for a local bank (freelance project).
- 35% high-potential loan applicants were university graduates, and 40% loans were requested by middle-aged individuals.
- Boosted loan conversion rates by 18% through targeted customer segmentation.

Water Quality Modeling Using Enhanced CNN, RNN, LSTM, GRU of Turag

- Analyzed Turag River water and developed a novel method for modeling dissolved oxygen (DO) and biological oxygen demand (BOD) using stacked CNN, RNN, LSTM, and GRU under atomic energy center project.
- Deep learning models outperformed machine learning models, improving accuracy by 3.88%, reducing errors by 7.41%, and increasing reliability by 95.56%.

Ground Water Arsenic Pollution Modeling Using Ensemble Techniques

- Analyzed groundwater from 909 wells to assess Arsenic pollution and developed a novel ensemble technique using multi-scalar data fusion (soil, climatic, anthropogenic, satellite imagery) for prediction.
- The approach is expected to improve prediction accuracy by 5-10% compared to traditional deep learning models.
- Collaborated with Dr. Anwar Zahid from the Institute of Water Modeling, BWDB on the project.

All Other projects can be found on [Github](#)

Publications

Journal of Next Research, Elsevier (Under review)

Hasan, M. R., Rahman, A., Zubyer, S., & Jolly, D. Y. N. Comparative analysis of water quality forecasting of enhanced CNN, RNN, LSTM, GRU-based multivariate and univariate deep learning architectures for the urban Turag River.

Journal of Biological Science, University of Dhaka (Under review)

Uddin, M. J., Hasan, M. R., Arabi, F. Z., & Ali, A. Z. Spatial soil variability and carbon dynamics in the Moribund Delta of the Ganges of Bangladesh.

Journal of Environmental Geochemistry and Health, Elsevier

Rahman, A., Hasan, M. R., Zubyer, S., Jolly, Y. N., & Akter, S. Heavy metals and health risk assessment of Buriganga, Shityalakshya, Balu, Turag, Dhaleshwari river sediments and water around Dhaka.

Journal of Environmental Science Ecosystem, Elsevier

Hasan, M. R., Arabi, F. Z., Uddin, M. J., & Mohiuddin, A. S. M. The potential soil organic carbon stocks in Sundarbans tidal mangrove forest ecosystem of Bangladesh.

References

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