

# Md Abir Hossain

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## SUMMARY

MSc graduate in Artificial Intelligence and Machine Learning with hands-on experience in Python, Machine Learning, LangChain, RAG, SQL and statistical modeling. Built and evaluated traditional machine learning models in real-world projects. I am seeking Junior Data Analyst / Data Scientist roles. I have the right to work in the UK.

## PROJECTS

### SlotFinder | *Python, LSTM, Pandas, Matplotlib*

- Developed a spatio-temporal car parking prediction system using Python, implementing stacked LSTM models to forecast slot availability with high accuracy
- Performed **data collection, data cleaning, feature engineering** and **time series preprocessing** on multivariate parking and timestamp data
- Achieved **96%** prediction accuracy with low RMSE and MAPE, validating performance using train/validation/test splits and appropriate evaluation metrics

### Sequential LLM Intelligence Pipeline | *Python, LangChain (LCEL), OpenAI, Streamlit*

- Engineered a multi-stage reasoning pipeline using LangChain Expression Language (LCEL) to perform automated entity extraction and contextual historical mapping
- Implemented persistent session-state memory using ConversationBufferMemory to maintain complex conversation context across non-linear user interactions
- Designed modular Prompt Templates and logic handoffs to transform unstructured LLM outputs into structured data points, ensuring high reliability between chain steps

### Customer Segmentation & Loyalty Value Prediction | *Python, SQL, Scikit-learn*

- Built an end-to-end customer analytics pipeline using transactional retail data to support CRM and loyalty decision-making
- Engineered RFM and behavioural features to segment customers using clustering techniques, identifying high-value and at-risk groups
- Used SQL to analyse segment-level revenue, retention trends and customer contribution, translating results into actionable business insights

## EDUCATION

### University of Birmingham

Birmingham, UK

*Master of Science in Artificial Intelligence and Machine Learning*

*Sep. 2023 – Sep. 2024*

- Modules: Intelligent Data Analysis, Machine Learning, Mathematical Foundations of AI & ML
- Dissertation: Optimal Source-Detector Placement, a optimised fNIRS source-detector placement for auditory cortex activation using MATLAB and sensitivity (Jacobian) analysis

### United International University

Dhaka, Bangladesh

*Bachelor of Science in Computer Science and Engineering*

*Jan. 2017 – Apr. 2022*

- Modules: Database Management System (**82%**), Pattern Recognition (**90%**), Artificial Intelligence (**88%**)

## EXPERIENCE

### Teaching Assistant

Jun. 2021 – Sep. 2021

*United International University*

*Dhaka, Bangladesh*

### Customer Service Assistant

Jan. 2024 – Present

*Tesco*

*Birmingham, United Kingdom*

## TECHNICAL SKILLS

**Languages & Libraries:** Python, SQL, Scikit-learn, SciPy, Pandas, NumPy, Matplotlib.

**ML & Deep Learning:** LangChain, RAG, Linear & logistic Regression, LSTM, XGBoost, Random Forest, NLP, PCA.

**Languages:** English (Advanced), Bengali (Native).