MD.SAMEER SAYED

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Professional Statement

AI and Machine Learning practitioner with hands-on experience in building and deploying models across NLP, LLMs, and RAG-based systems. Skilled in developing end-to-end pipelines using Python, scikit-learn, TensorFlow, PyTorch, and Hugging Face. Experienced with LangChain, FastAPI, and Streamlit for integrating and serving intelligent applications. Worked on transformer-based sentiment analysis, topic modeling, time-series forecasting, and chatbot systems using vector databases and Groq LLM. Passionate about applying AI to solve real problems, optimize workflows, and build scalable intelligent solutions.

Educational Qualifications

American International University Bangladesh (Kuril, Dhaka)   January 2022 - Present
      BSC. In Computer Science (Major: Information Systems)
      CGPA: 3.90

St. Joseph Higher Secondary School and College (Mohammadpur, Dhaka)   2018-2020
      Higher Secondary Certificate in Science | GPA: 5.00

Professional Experience

Data Science Virtual Intern- Intern Intelligence (India)   February 2025- March 2025

- Implemented machine Learning Models to predict customer behaviour using a Telecom Company Dataset
- Developed a working Time Forecasting Model
- Managed time to complete the virtual internship in my personalized time parallel to my university study.

Skills

Technical Skills

- **LLM:** BERT, RoBERTa, XLM-RoBERTa, ELECTRA, LLaMA-3, Groq LLM, Hugging Face
- **RAG:** LangChain, LangGraph, FAISS, ChromaDB, VectorDBs, Context Retrieval, Document Indexing
- **Machine Learning:** Scikit-learn, Pandas, Numpy, Regression, Classification, Clustering, TF-IDF, Word2Vec, LDA, DTM
- **Deep Learning:** TensorFlow, Keras, PyTorch, CNN, RNN, LSTM, GAN, Transfer Learning, Model Fine-Tuning
- **NLP:** Tokenization, Lemmatization, Stopword Removal, Sentiment Analysis, Topic Modeling, Text Classification
- **Computer Vision:** OpenCV, MobileNetV2, Face Detection, Image Preprocessing, Feature Extraction
- **API & Deployment:** FastAPI, Flask, Streamlit, Docker, Uvicorn, REST APIs
- **Programming:** Python, HTML, CSS, JavaScript
- **Database:** MySQL, PostgreSQL, SQLAlchemy, ETL Pipelines, Data Cleaning, Data Preprocessing
- **Visualization:** Matplotlib, Seaborn, Plotly, pyLDAvis, Power BI, Excel
- **Version Control & Tools:** Git, GitHub, VS Code, Jupyter, Anaconda, Linux

Soft Skills

- Strong problem-solving and analytical thinking.
- Effective collaborator in cross-functional teams and independent work.
- Clear communicator with leadership experience through extracurricular roles.

Research

Ongoing	**Movie Poster Generation from Movie Trailer using GAN.**
	Developing a novel Generative Adversarial Network (GAN), TensorFlow and Python model to automatically generate movie posters from movie trailers.
Submitted	**Bangla SMS Spam Detection using BERT, XLM RoBERTa (ResearchGate, IDAA-2025)**
	Applying NLP Architectures such as BERT, XLM RoBERTa to detect fraudulent messages in Bengali language and increasing accuracy to 98%

Projects

News Article Topic Modeling & Visualization
- Web-scraped news corpora (from BBC) and performed topic extraction using LDA and Dynamic Topic Models (DTM), preprocessing with pandas and spaCy.
- Produced interactive topic & term visualizations (pyLDAvis, matplotlib) for exploratory analysis and stakeholder reporting.

Comparative Analysis of BERT vs ELECTRA (Stock Sentiment)
- Fine-tuned pre-trained transformers (BERT, ELECTRA) with Hugging Face on financial text for sentiment classification; training/validation pipelines in PyTorch.
- Benchmarked models (accuracy, precision, recall) against classical baselines to identify best architecture for market sentiment tasks.

Stock & Financial-News Sentiment Analysis
- Scraped and preprocessed market headlines and social text; engineered features with TF-IDF and embeddings.
- Developed classification pipelines (Logistic Regression / Naïve Bayes) in scikit-learn and visualized sentiment trends for trading signal exploration.

Book Recommender System (Collaborative Filtering and Streamlit)
- Implemented collaborative filtering (cosine similarity / k-NN) recommendation logic with pandas and scikit-learn.
- Delivered an interactive Streamlit UI for real-time recommendations and user testing.

YouTube Chatbot using Transcripts, RAG and Groq LLM
- Built retrieval-augmented system: fetched YouTube transcripts/subtitles, chunked and indexed with FAISS; retrieval via LangChain.
- Integrated Groq LLM for QA, exposed via FastAPI backend and Streamlit frontend for interactive demos.

Movie Genre Multi-Label Classification
- Converted plot summaries into TF-IDF features and trained multi-label classifiers (Logistic Regression / One-vs-Rest) using scikit-learn.
- Evaluated with micro/macro F1 and implemented thresholding for multi-label outputs.

Restaurant Review Sentiment Analysis
- Preprocessed review text (tokenization, stopword removal, stemming) and trained Naïve Bayes/Logistic models for polarity detection.
- Generated term-frequency and polarity visualizations to support product/UX decisions.

Airline Passenger Time-Series Forecasting (LSTM)
- Prepared sequential datasets with sliding windows and normalization; implemented LSTM models in TensorFlow/Keras for passenger forecasting.
- Validated models on hold-out sets; performed error analysis to guide feature selection and hyperparameter tuning.

Bitcoin Price Prediction using SVR
- Engineered lag, technical indicators and rolling statistics from historical price series; scaled features and trained SVR models.
- Assessed model performance with RMSE and MAPE to evaluate short-horizon price prediction viability.

Fuel Consumption Prediction API with FastAPI and Linear Regression
- Trained linear regression model for fuel consumption and wrapped inference in a production-ready FastAPI service with Pydantic validation.

- Implemented CI/run server (uvicorn) endpoints for quick integration with frontends or other services.

IRIS Classifier with FastAPI and Streamlit
- Trained classic scikit-learn models on IRIS and exposed inference via FastAPI; built Streamlit UI for demo and manual testing.
- Showcased model serving patterns and input validation for real-time predictions.

Real-Time Face Detection System (MobileNetV2, KNN)
- Developed live face detection pipeline using OpenCV and MobileNetV2; implemented fallback KNN approach for lightweight scenarios.
- Evaluated accuracy vs latency tradeoffs to recommend deployment configuration for edge devices.

Certificates

- **Hackerrank Certified Python**
  Hackerrank   March 2025
- **Certified Data Analyst**
  Data Solution 360   November 2024
- **Cisco Certified IT Specialist: PC Hardware and Software**
  Cisco Networking Academy   June 2022
- **MS Excel Certification**
  Brightskills   March 2022

Achievements

Dean's List Award | American International University-Bangladesh
- Awarded for academic excellence across 6 semesters from Spring 2022-23 to Fall 2024-25

Academic Scholarship | American International University-Bangladesh
- Awarded merit-based academic scholarship for maintaining excellent academic performance since Spring 2023-24

Extra-Curricular Activities

Registration Lead, AIUB Computer Club Gaming Fest-2022   December 2022, AIUB
- Managed the registration process for a university-wide gaming festival, ensuring a seamless and organized entry for all attendees.
- Oversaw all check-in procedures and attendee verification at the event entrance, contributing to the successful and smooth execution of the festival.
- Coordinated registration logistics and solved on-the-spot issues to facilitate efficient and error-free entry for participants.

Exam Co-ordinator, Prothom Alo National Math Olympiad -2018   March 2019
St. Joseph Higher Secondary School
- Coordinated multiple exam sessions, ensuring strict adherence to academic regulations and maintaining a quiet, disciplined environment for all Olympiad participants.

References/Referees

References Available upon request.