

Md. Abdur Rakib Mollah

Machine Learning Engineer | Problem Solver

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Summary

I completed my BSc in Computer Science & Engineering from Rajshahi University of Engineering & Technology. I am currently working as a Machine Learning Engineer at Euclido.Inc.- a Canada-based Ed-tech start-up. I have a keen interest in Data Analysis, Machine Learning, Deep Learning, Computer Vision, and NLP. I have published a few research papers at various conferences.

I have completed my thesis, which involved researching Natural Language Processing (NLP) with a specific focus on text generation in the Bangla language. During this project, I utilized language models like GPT-2 and BERT. This endeavor not only allowed me to make contributions to the field but also expanded my knowledge and expertise in NLP. Overall, with a curious mindset and hands-on experience, I am an enthusiastic learner committed to staying informed about the latest advancements in Artificial Intelligence.

Experience

Machine Learning Engineer-I

Waterloo, Ontario, Canada

EUCLIDO.INC

March 2024 - Present

- Designed and built a chatbot that leverages Retrieval-Augmented Generation (RAG) combined with LangGraph for dynamic, context-aware responses.
- Created an AI agent to autonomously manage the ETL process, automating data ingestion, transformation, and loading while significantly reducing manual intervention.
- Implemented a knowledge graph to establish relationships between chatbot sessions, enhancing contextual understanding and providing deeper insights into user interactions.

Research Assistant

Rajshahi, Bangladesh

DEPARTMENT OF CSE, RUET

Jan 2022 - Jul 2022

- Worked on a research paper in my 6th semester under the supervision of my respected teachers, it was later published.

Skills

Programming & Development

Python (Sci-Kit Learn, TensorFlow, PyTorch, JAX), C++, Java, JavaScript

Machine Learning & AI

LLMs, Retrieval-Augmented Generation (RAG), Vector Databases (Pinecone, ChromaDB)

Prompt Engineering

Chain of Thought (CoT), Tree of Thought (ToT), Langchain for tool integration

Cloud & ML Deployment

AWS (S3, Lambda, EC2), Azure AI Services, CI/CD Pipelines (Jenkins, GitHub Actions), Docker

Database Management

PostgreSQL, MySQL, MongoDB

DevOps & Software Engineering

Git, Linux, Websockets, RESTful APIs, Flask, FastAPI, Docker Image Management

Research Work

GRASP-ChoQ: Knowledge Graph-Based Retrieval Augmentation for Stance Detection in

ACL Anthology, 2025

Political Texts with Chain-of-Questions Reasoning.

ACCEPTED HERE

Dec 2025

- Enhanced political stance detection in understudied contexts by combining structured knowledge graphs with chain-of-questions reasoning (GRASP-ChoQ), achieving up to a 40% higher F1 score over zero-shot baseline methods.

Adapting Contextual Embedding to Identify Sentiment of E-commerce Consumer

iCACCESS, 2024

Reviews with Addressing Class Imbalance Issues.

ACCEPTED HERE

March 2024

- Optimized sentiment classification in e-commerce reviews by leveraging RoBERTa embeddings and XGBoost with re-weighted loss, achieving 83.84% multiclass and 93.29% binary accuracy.

Detection of Fake News with RoBERTa Based Embedding and Modified Deep Neural Network Architecture.

ICCIT, 2023

PUBLISHED HERE [↗](#)*

Dec 2023

- Improved fake news classification by integrating RoBERTa embeddings with a modified deep neural network, achieving higher detection accuracy than existing benchmarks.

Exploring Deep Convolutional Neural Networks: A Grad-CAM Enhanced Comparative Study for Automated COVID-19 Diagnosis from Chest X-Ray Images.

SMART GENCON, 2023

PUBLISHED HERE [↗](#)*

Dec 2023

- Achieved 99.13% binary and 97.66% multi-class accuracy in COVID-19 diagnosis by leveraging Grad-CAM visualization and evaluating multiple CNN architectures.

Improving Alzheimer's Disease Diagnosis on Brain MRI Scans with an Ensemble of Deep Learning Models.

ICAIIIH, 2023

ACCEPTED HERE [↗](#)*

Dec 2023

- Developed an ensemble model for early Alzheimer's detection, surpassing benchmark accuracies with 99.96% and 98.90% results on ADNI datasets.

An Ensemble Approach for Identification of Distracted Driver by Implementing Transfer Learned Deep CNN Architectures.

ICCIT, 2022

PUBLISHED HERE [↗](#)*

Dec 2022

- Enhanced driver distraction detection by ensembling MobileNet and DenseNet121, leading to improved classification accuracy on dashcam images.

Generation of Bangla Literature Texts by Fine-tuning Generative Pre-trained Transformer.

B.SC THESIS [↗](#)*

- Developed a GPT-2-based Bangla text generator that replicates Satyajit Ray's writing style, evaluating performance through Masked vs. Causal Language Modelling.

Education

Rajshahi University of Engineering and Technology (RUET)

Rajshahi, Bangladesh

B.SC IN COMPUTER SCIENCE AND ENGINEERING

Jan 2018 - Sep 2023

- CGPA: 3.02/4

Projects

DetectVideoShotLength Developed a Python package for detecting scene cuts in videos using histogram and SSIM analysis. The tool identifies frame changes, calculates shot durations, and visualizes scene length distributions. Available here. [↗](#)*

Bangla Text Generation using GPT-2 Fine-tuned GPT-2 to generate Bangla text in the style of Satyajit Ray's writing. The notebook is available here. [↗](#)*

Bangtex I created bangtex — a Python package that automates the conversion of native Bangla into bangtex transliteration for easier compilation in pdfLatex compiler. More information here. [↗](#)*

Line Follower Robot using Arduino UNO Designed and programmed an autonomous line-following robot as part of a peripherals and interfacing project. The project is uploaded here. [↗](#)*

Live Weather Forecast with Django Implemented a Django-based weather application that fetches real-time weather data using a public API. The complete project is uploaded here. [↗](#)*

Certifications

April 2023 **NLP**, Natural Language Processing with Classification and Vector Spaces. [↗](#)

Coursera

May 2023 **Machine Learning**, Machine Learning with Python [↗](#)

Freecodecamp