

# Roksana Akter

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## Professional Summary

Machine Learning Engineer and AI Engineer with hands-on experience building, evaluating, and deploying **production-grade ML and LLM-powered systems**. Strong background in **computer vision, RAG pipelines, and backend AI services** using FastAPI and Docker. Proven ability to take models from experimentation to real-world deployment, optimize inference performance, and collaborate with cross-functional teams to deliver measurable business impact.

## Technical Skills

- **Core Languages:** Python, SQL, Bash
- **Machine Learning & Deep Learning:** PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, Hugging Face
- **LLMs & RAG Systems:** LangChain, LangGraph, Retrieval-Augmented Generation (RAG), Vector Databases (FAISS, Chroma, Pinecone), Prompt Engineering, Multi-Agent Systems
- **ML Engineering & MLOps:** Model Training & Evaluation, Inference Optimization, Docker, CI/CD, Experiment Tracking, Basic Kubernetes
- **Backend & APIs:** FastAPI, Flask, RESTful APIs, Authentication, Async Services
- **Cloud & Deployment:** AWS, Google Cloud Platform, Vercel, Render
- **Mathematics for ML:** Linear Algebra, Probability, Statistics

## Experience

### Betopia Group

Machine Learning Engineer / AI Engineer

Dhaka, Bangladesh

January 2025 – Present

- Led end-to-end development of an **AI-powered mock interview platform**, combining computer vision-based behavioral signal extraction with LLM-driven feedback generation; deployed as a production FastAPI service. [\[Code\]](#) • [\[Live\]](#)
- Designed and trained a **hair shade recommendation system** using ResNet-based image segmentation and K-Means clustering; evaluated model outputs against labeled samples to ensure reliable predictions. [\[Code\]](#)
- Architected a **multi-agent AI platform (HarmoniAI)** integrating LLMs, image generation, and voice synthesis to support automated e-commerce and media workflows. [\[Code\]](#)
- Built and optimized a **computer vision segmentation pipeline (CarWrapAI)**; containerized the inference service with Docker, reducing latency and improving deployment stability. [\[Code\]](#)
- Developed ML-driven sports analytics services using external APIs, delivering real-time predictions through scalable backend endpoints. [\[Code\]](#)
- Deployed multiple ML and AI services across cloud platforms (AWS, Vercel, Render), maintained documentation, and supported junior engineers during integration and testing.

## Selected Machine Learning Projects

- **Medical Home Service Platform** — Developed a full-stack medical support system integrating appointment booking, service management, and authentication. Implemented REST APIs with FastAPI and deployed on cloud platforms. [\[Code\]](#)

- **Iris Classification API** — Built a production-ready FastAPI service for predicting iris species using a trained ML model; includes automated preprocessing, model loading, and standardized API responses. [\[Code\]](#)
- **Heart Disease Prediction API** — Engineered an ML inference API that predicts heart disease risk using logistic regression and model validation pipelines; containerized with Docker for scalable deployment. [\[Code\]](#)
- **Sentence Contradiction Classifier** — Implemented a natural language inference (NLI) classifier to detect contradiction/entailment using transformers and custom training; experimented with BERT-based fine-tuning. [\[Code\]](#)
- **Atliq Hardware Consumer Analytics** — Performed exploratory and diagnostic data analysis on consumer hardware datasets; created dashboards, KPIs, and insights to support data-driven business decisions. [\[Code\]](#)

## Education

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### Gopalganj Science and Technology University

*B.Sc. in Computer Science and Engineering*

*Gopalganj, Bangladesh*

2019 – 2024

- **CGPA:** 3.25 / 4.00

### Bhawal Bodre Alam Government College

*Higher Secondary Certificate (HSC)*

*Gazipur, Bangladesh*

2018

- **GPA:** 3.83 / 5.00

### Johura Khatun Girls High School

*Secondary School Certificate (SSC)*

*Mymensingh, Bangladesh*

2016

- **GPA:** 4.89 / 5.00

## Certifications

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- **Data Analysis with Python** – EDGE (2024)

## Publications & Writing

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- Author on **Medium** — Wrote articles on LLMs, computer vision, and Generative AI. [\[@Roksana25\]](#)