

Abrar Faiaz Adnan

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Summary

AI/ML Engineer with 4.5+ years of experience developing AI/ML solutions using Python, LangChain, RAG, prompt engineering, and vector databases alongside production computer vision systems (YOLO, ONNX, OpenVINO) and end-to-end ETL/ELT pipelines. IBM Certified in RAG & Agentic AI with experience building local RAG applications and familiarity with LangGraph, CrewAI, and GCP data engineering services.

Technical Skills

AI & Machine Learning: PyTorch, TensorFlow, OpenCV, Scikit-learn

Generative AI & LLMs: LangChain, LangGraph, CrewAI, AG2, RAG Architectures, Vector Databases, Ollama, Prompt Engineering

Data Engineering & Pipelines: ETL/ELT Design, Data Modeling, Data Warehousing, BigQuery, MySQL, Data Mining

Development & Automation: Python (OOP), REST APIs, Playwright, PyAutoGUI

Cloud & DevOps: GCP (Cloud Data Engineering), Docker, Linux, Git (Version Control)

Analytics & Visualization: Tableau, Pandas, NumPy, Matplotlib, Seaborn, Statistical Analysis

Professional Experience

Software Engineer – Research & Development (Data & ML)

Tiger IT Bangladesh Ltd. | June 2023 – Present

- **ALPR Pipeline:** Developed and optimized a two-stage YOLOv8-based ALPR pipeline for license plate detection and character recognition. Audited a training dataset containing over 1 million character annotations, correcting mislabeled samples, removing duplicates, and balancing class distributions through augmentation, improving character detection recall by approximately 30% during internal model evaluation while maintaining a very low false-positive rate.
- **Biometric Fingerprint Pipeline:** Evaluated deep learning and minutiae-based fingerprint embedding approaches for biometric authentication, benchmarking DeepPrint against traditional feature-based methods to identify the most suitable production architecture.
- **Medical Imaging (Hip Dysplasia):** Fine-tuned and evaluated a deep learning model for hip dysplasia detection using hospital-provided X-ray datasets, incorporating advanced preprocessing techniques to improve prediction consistency and reduce image artifacts.
- **Face Recognition Based Attendance System:** Developed a face-recognition attendance system by building an embedding storage pipeline, integrating searchable databases for identity retrieval, and supporting downstream attendance analytics.
- **FaceMorphing:** Engineered a 3-stage face-morph pipeline (filter → pair → morph) generating bona fide and morphed face image datasets for single-image morphing attack detection (S-MAD) research.

Automation Engineer (AI & Data Pipeline)

Endangered Labs | Jan 2022 - May 2023

- **Rendering Automation:** Designed an end-to-end ETL and rendering pipeline generating 200 variations for 2,300+ digital assets, eliminating memory bottlenecks to reduce batch rendering time from 3 days to 1 day while tripling throughput.
- **Image Optimization Research:** Reduced an image collection size from 700MB to 8MB with minimal quality loss. Reducing cost significantly for Bitcoin blockchain inscription.
- **Applied auto tagging AI:** Built a local VLM pipeline auto-tagging a multi-thousand-image library, engineered structured-JSON prompting, shipped resumable batch inference across 128 batches with rule-based safety filtering.
- **Global Collaboration:** Collaborated with a global (US-based) team to define data extraction and transformation requirements, optimize workflow bottlenecks, and ensure compatibility across the full automated pipeline, aligned with business objectives.
- **3D model export with multi platform support:** Built automation tooling for exporting and transforming 3D model data across multiple platform formats and performing manual validation. Streamlined content production and reduced repetitive manual work across the asset generation pipeline.

Intern (E-Nothi Department),

a2i programme | Feb 2020 - Mar 2020

- Verified and appended data for 1000+ educational institutions in the national education database, ensuring 100% data accuracy.
- Built a summary dashboard across multiple institutional metrics, supporting data-driven reporting for the department.

Education

B.Sc. in Information and Communication Engineering – Bangladesh Army University of Engineering & Technology (Feb 2017 – Jul 2021, CGPA: 3.56)

Projects

Full portfolio: <https://github.com/AbrarAdnan>

- [Geekbot](#) – Built a local RAG assistant using LangChain featuring multi-format document ingestion, semantic chunking, ChromaDB vector database, multi-query expansion, cosine-similarity reranking, citation-aware retrieval, and optional live web search while preserving data privacy.
- [Metacritic Game Data Analysis](#) – Scraped, cleaned, and modelled 100,000+ game records into a formatted dataset; built a Tableau dashboard for multi-dimensional analysis of genres, scores, and platforms from the dataset — demonstrating end-to-end data pipeline and BI skills.
- [Multilabel Game Genre Classifier](#) – BERT-based NLP model for 74 genres; 96.4% accuracy using advanced feature engineering. Trained on the Metacritic dataset.
- [Face Sentry](#) — Self-hosted face-recognition backend for home CCTV: end-to-end Python pipeline (SCRFD detection, 5-point landmark alignment → 112×112 crops, ArcFace 512-D embeddings with L2 normalization), template storage (numpy+json), enrollment + nearest-neighbor / cosine-similarity matching, and biometric-focused evaluation (ROC / False Accept Rate);

Open Source Contributions

- [Open-Source Contributor – Blend My NFTs](#) (1k+ GitHub stars): Implemented error-checking automation for 3D asset generation pipeline, improving pipeline reliability and reducing failures.

Training & Certifications

- [IBM Data Engineering Professional Certificate](#) – Coursera.org (July 2026): 16-course series covering ETL/ELT pipelines, SQL, Data Warehousing, NoSQL, Apache Spark, Airflow, Kafka, and Big Data engineering.
- [Preparing for Google Cloud Certification: Cloud Data Engineer](#) – Coursera.org (November 2025): Core focus on BigQuery, Dataflow, Pub/Sub, Cloud Storage — directly applicable to cloud data pipeline architecture.
- [IBM RAG and Agentic AI](#) – Coursera.org (Oct 2025): 8-course professional certificate covering LLMs, LangChain, LangGraph, RAG, Vector Databases, CrewAI, AG2, BeeAI.
- Dokkho Data Science Program – MasterCourse Bangladesh Ltd. (Nov 2022 – May 2023): 4 capstone projects in NLP, computer vision, and analytics. Skills: Tableau, PyTorch, Selenium, OpenCV, Flask, Huggingface, NLP, FastAI, TensorFlow.

References

Md. Rajib Hossain, Ph.D. – Principal Data Scientist, bKash Ltd. | rajib.hossain@bkash.com | +88 01720596038

Md. Shakil Ahmed – Assistant Vice President, R&D, Tiger IT Bangladesh Ltd. | shakil@tigerit.com | +88 01719158103