

Rocky Dewan

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Portfolio: rocky-folio.vercel.app

Professional Summary

AI/ML Engineer and Full-Stack Developer with 1+ year of hands-on experience building production-ready AI systems, LLM-powered applications, and scalable web platforms. Proficient in prompt engineering, RAG pipelines, LLM deployment, ML pipeline optimization, and full-stack architecture using React, FastAPI, and Next.js. Strong background in security-focused development, cloud deployment (AWS, Docker), and applied NLP research. Experienced collaborating in cross-functional agile teams and contributing to open-source and research publications.

Technical Skills

- **Languages:** Python, JavaScript, TypeScript, C++, C
- **Frameworks:** React, Next.js, Flask, FastAPI, Django, Streamlit
- **Databases:** PostgreSQL, MongoDB, MySQL, Firebase, Supabase
- **ML/AI:** PyTorch, TensorFlow, Scikit-learn, Keras, NLP, LLMs, RAG, LangChain, Prompt Engineering,
- **Vector Databases**
- **APIs & Security:** REST API, JWT, OAuth2, CSRF/XSS Prevention, AES-256-GCM
- **DevOps & Cloud:** Docker, AWS, CI/CD, Git, Linux, Vercel
- **Visualization:** Matplotlib, Seaborn, Plotly

Professional Experience

Junior Developer (AI/ML) — AMAYRAH Research & Development Feb 2026 – Present

- Contribute to architecture design and deployment of production ML models, reducing inference latency by optimizing pipeline stages.
- Optimize ML pipelines for scalability and throughput, supporting models processing 10K+ requests per day.
- Collaborate on UI integration for AI-powered systems, bridging backend ML APIs with React-based frontends.
- Assist in evaluating and fine-tuning LLM outputs using prompt engineering and retrieval-augmented generation (RAG) techniques.
- Participate in code reviews and agile sprint planning, maintaining high code quality across the team.

AI Software Engineer (Remote) — Fanni AI, Jordan Mar 2025 – May 2025

- Developed AI-driven product recommendation and search features for an e-commerce platform, improving recommendation relevance by ~30%.
- Built and deployed scalable ML pipelines using FastAPI and Docker, reducing model serving latency by 25%.
- Integrated LLM-based features into production workflows, collaborating with cross-functional teams across 2 time zones.
- Contributed to REST API design and backend optimizations, improving system response time for high-traffic endpoints.

Academic Team Member — Bangladesh Mathematical Olympiad Dec 2025 – Present

- Contributed to the Bangladesh Mathematical Olympiad Committee by developing mathematical problems that challenge students' critical thinking and creative problem-solving skills.

Key Projects

SkillBridge-BD – AI-Powered Skill Verification & Job Matching Platform Feb – Apr 2026

- Built a full-stack skill verification and job matching platform for Bangladesh, connecting job seekers, freelancers, and employers through AI-powered assessments; onboarded 200+ test users during beta.
- Implemented multi-role architecture (job seeker, freelancer, employer, admin) with Supabase Auth, Row Level Security, and an AI career advisor powered by Groq LLaMA 3.3 70B via a RAG pipeline.
- Engineered the AI assessment module to auto-generate skill tests and score responses, reducing manual evaluation effort by 80%.
- Built with Next.js 15, TypeScript, Supabase (PostgreSQL), Tailwind CSS, and Vercel; achieved sub-2s page load times.

Passwordless Authentication System Jan – Feb 2026

- Engineered secure passwordless authentication using short-lived magic links (15-minute TTL) and OTP verification, eliminating password-related attack vectors.
- Implemented CSRF protection, audit logging, and XSS prevention; containerized with Docker for reproducible deployment.
- Designed security-focused backend using TypeScript and TypeORM with full audit trail supporting forensic analysis.
- Reduced authentication friction — login flow completed in under 30 seconds with zero server-side password storage.

VoxCrypt – Audio/Video Encryption Tool

Dec 2025 – Jan 2026

- Built a client-side web app encrypting audio/video files into standard image files using AES-256-GCM authenticated encryption with PBKDF2 key derivation (100,000 iterations) — zero server transmission.
- Applied DEFLATE compression achieving 15–40% file size reduction before pixel-level encoding via HTML5 Canvas API.
- Built with React 18, Vite 5, and the browser-native Web Crypto API, ensuring full offline functionality and data privacy.

HashSuite – Cryptographic Verification Tool

Nov – Dec 2025

- Built a client-side cryptographic hashing tool supporting BLAKE2b and SHA-256/512 algorithms with zero server-side data transmission, ensuring complete user privacy.
- Processed files up to 500MB in-browser using chunked streaming reads, avoiding memory overflow on large inputs.
- Designed a clean, accessible UI enabling non-technical users to verify file integrity in under 5 seconds.

CityPulse – Urban Issue Reporting Platform

Aug - Nov 2025

- Built a full-stack civic platform enabling citizens to report real-world urban issues (potholes, broken streetlights, garbage dumps) with live geolocation tagging via OpenStreetMap API.
- Implemented community upvoting system and interactive map view, allowing residents to prioritize high-impact local problems collaboratively.
- Developed an admin dashboard for managing report statuses end-to-end, built with React, Node.js, Express, and MongoDB; deployed on Render.

Publications

- *Face Recognition Using ArcFace Embeddings and Traditional Machine Learning Techniques.*
- *Bangla Fake News Detection Using BanglaBERT and Ensemble Machine Learning Models.*

Education

B.Sc. in Computer Science and Engineering

2022 – 2026

Bangladesh University of Business and Technology

Relevant Coursework: Machine Learning, Natural Language Processing, Data Structures & Algorithms, Computer Security, Database Systems, Software Engineering

Achievements

- **Champion** — Intelligent Attendance System (Hardware & IoT), Tech Brainstorm 2025
- **First Runner-up** — Artificial Intelligence Category, Tech Brainstorm 2024