

MUHIT KHAN

Software Development Engineer | AI/ML Engineer | ERP Implementation Expert

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PROFESSIONAL SUMMARY

Software Engineer and systems architect who designs end-to-end solutions to real-world operational problems, not just features. B.Tech in Computer Science (KIIT University, India) with 2+ years architecting systems where reliability, data integrity, and scale are non-negotiable, leading the data-migration strategy and core module architecture for a nationwide Enterprise ERP at the Bangladesh Ministry of Defence, redesigning relational schemas to sustain 99.9% uptime under high-concurrency load. Independently identified a gap in how high-volume clinics manage patient care, then designed and built Doctors Canvas end-to-end: a cloud system with a local-first data layer (RxDB/RxJS) for unreliable connectivity, plus an integrated AI clinical assistant for history summarization and drug-interaction checks, now used in active practice. Works fluently across the stack (React, Next.js, Node.js, TypeScript, PostgreSQL) and applied AI/ML (LangChain, RAG) as tools in service of one goal: understanding a domain's real constraints, then engineering a system that holds up under them.

WORK EXPERIENCE

Lead Software Engineer 2025 – Present

Doctors Canvas (Self-Developed SaaS) — doctorscanvas.com Dhaka, Bangladesh

Independently designed, built, and launched Doctors Canvas, an offline-first clinic management platform now in active use by 200+ practising doctors across Bangladesh, taking the product from concept through production deployment as sole engineer directly collaborating with the doctors.

Built an offline-first prescription engine using a local RxDB-backed architecture that syncs the full clinical dictionary to the device, enabling doctors to write and print prescriptions with zero downtime during internet outages.

Engineered “Shifa AI,” an integrated clinical co-pilot that summarises complete patient histories in seconds and runs automated drug-interaction safety checks before prescriptions are finalised, built on the Vercel AI SDK with streamed OpenAI and Google Gemini model integration.

Designed a keyboard-first prescription UI with intelligent autocomplete, reducing prescription completion time to under 30 seconds for high-volume practices.

Built BMDC-compliant letterhead generation, a patient CRM with longitudinal visit history, an automated appointment queue, and a real-time Patient Queue Display (PQD) module for clinic waiting rooms.

Owned the full product lifecycle end-to-end: architecture, full-stack development (Next.js 15, React 19, Prisma, PostgreSQL, RxDB), AI integration, BMDC regulatory compliance, and onboarding of early doctor adopters.

Software Engineer (Assistant Manager) Dec 2025 – Present

CSD Bangladesh – Ministry of Defence, Government of Bangladesh Dhaka, Bangladesh

Spearheaded the end-to-end delivery of a nationwide Enterprise ERP system, leading the full-stack migration from legacy architecture to a modern React, Node.js, and TypeScript platform, eliminating critical single points of failure across all regional operations.

Achieved 100% data integrity during migration by designing and executing a systematic extraction and validation pipeline transferring historical records from legacy databases into a new PostgreSQL environment.

Engineered core ERP modules — including real-time POS and scalable inventory management — by architecting high-performance RESTful APIs that reduced average data retrieval latency by 10%, supporting thousands of active military personnel and retail outlets simultaneously.

Maintained 99.9% system uptime during peak-concurrency periods by redesigning relational database schemas and implementing advanced query optimisation strategies, directly improving operational resilience.

Drove cross-functional collaboration across design, QA by logging & reporting the issues, and infrastructure teams to deliver sprint deliverables on schedule maintaining the SOPs of an Agile/Scrum framework.

Spearheaded User Acceptance Testing (UAT) and comprehensive training programs to facilitate seamless ERP adoption among end-users.

Junior Software Development Engineer Aug 2024 – Dec 2025

Nazbel Engineering & Technology Ltd. Dhaka, Bangladesh

Converted a 3-month internship into a full-time offer through consistent high performance; subsequently led the end-to-end development of four client-facing web applications — NazbelFireproofing.com, BdFireproofing.com, BricknVilla.com, and iForbd.org — serving a combined audience across industry verticals.

Delivered 4 production-grade applications using Next.js, React, and TypeScript, deployed via Vercel and Firebase, achieving optimised build times and robust real-time data handling at scale.

Reduced security vulnerabilities and improved global page load performance by strategically configuring Cloudflare CDN and DNS management, enhancing user data protection and system resilience.

Collaborated directly with clients to gather requirements, iterate on UX designs, and deliver polished responsive interfaces within agreed timelines.

Accreditation & Ticketing Supervisor Dec 2022 – Feb 2024

Paytm Insider (FIH Hockey World Cup 2023 | Indian Super League 2023 | AFC Cup 2023) Bhubaneswar, India

Managed accreditation databases for 3 major international sporting events, performing rigorous data entry and validation to ensure zero-error credential processing under high-pressure, time-critical conditions.

Coordinated cross-functional communication between accreditation and ticketing teams, streamlining event operations and enhancing the spectator and stakeholder experience across all venues.

EDUCATION

Bachelor of Technology – Computer Science & Engineering Sep 2021 – May 2025

Kalinga Institute of Industrial Technology (KIIT University) Bhubaneswar, India

Awarded a Full-Funded SII Scholarship by the Indian Ministry of Education.

Relevant Coursework: Artificial Intelligence, Machine Learning, Web Technologies, Computer Networking, Data Structures & Algorithms.

Higher Secondary Certificate (Science) – GPA: 5.00 / 5.00 Jul 2018 – Sep 2020

Dr. Mahbubur Rahman Mollah College Dhaka, Bangladesh

PROFESSIONAL CERTIFICATION

Certified Artificial Intelligence Professional (CAIP) GAQM (Global Association for Quality Management)

Earned the CAIP professional designation by passing a proctored examination (ProctorU) in core AI principles and applied professional standards. Certificate No. G-110533, issued 29 November, 2025.

IBM AI Engineering Professional Certificate (V3) IBM Skills Network / Coursera

Mastered Machine Learning, Deep Learning (Keras, TensorFlow, PyTorch), and Generative AI methodologies.

Completed advanced hands-on training in LLMs (GPT, LLaMA, BERT), NLP, LangChain, and Retrieval-Augmented Generation (RAG).

Capstone: Developed a production-grade Generative AI application using LangChain and RAG pipelines.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, Java, C/C++

Frontend: Next.js, React, Tailwind CSS, Radix UI, Zustand, Zod

Backend: Node.js, Express, FastAPI, Flask, REST APIs

Databases: PostgreSQL, Prisma, MongoDB, Firebase, Supabase, ChromaDB

Offline-First: RxDB, RxJS, IndexedDB, PWA

AI/ML: LangChain, RAG, OpenAI/Gemini APIs, Vercel AI SDK, PyTorch, TensorFlow, OpenCV

DevOps & Testing: Docker, AWS, CI/CD, Vercel, Cloudflare, Playwright, Cucumber (BDD)

Tools: Git, GitHub, Postman, Figma

System Design: Schema design, query optimisation, API design, offline-first architecture, ETL/data migration

KEY PROJECTS

Doctors Canvas — AI Powered Clinic Management SaaS (Self-Engineered, Live Production Product)

Engineered and built a full-stack, AI-powered clinic ecosystem currently used by practising doctors in Bangladesh, combining an offline-first prescription canvas, AI clinical assistant (Shifa AI) for history summarisation and drug-interaction checks, BMDC-compliant document generation, patient CRM, appointment scheduling, and a real-time Patient Queue Display for waiting rooms.

Technologies: Next.js 15 (App Router), React 19, TypeScript, PostgreSQL, Prisma, IndexDB (offline functionality & sync), Zustand, Vercel AI SDK (OpenAI & Gemini), Tailwind CSS 4, Radix UI, Framer Motion, Tiptap Editor, PWA / Service Workers (Serwist), Playwright

Multilingual RAG System (Bengali–English)

Engineered a RAG-based multilingual Q&A system capable of processing Bengali and English queries from HSC Bangla 1st Paper textbooks, incorporating source citation and Bengali text comprehension, serving as a model for low-resource NLP applications.

Technologies: LangChain, ChromaDB, FastAPI, OpenAI API, Redis, Python, PDFMiner, OCR, Docker

Paediatric Orthopaedic Surgeon Practice Management System

Architected and delivered a full-stack practice management solution integrating appointment scheduling, telemedicine, blog CMS, and admin portals with real-time scheduling, email automation, analytics, and SEO optimisation.

Technologies: Next.js, Prisma, PostgreSQL, NextAuth, Tailwind CSS, Docker, ImageKit CDN, Nodemailer

XAI Responsible AI Lung Disease Scanner

Developed a Responsible AI system for detecting 14 pulmonary conditions from chest X-ray images with Grad-CAM visualisation, providing clinician-interpretable explainability alongside diagnostic predictions.

Technologies: TensorFlow, Keras, Flask, OpenCV, Grad-CAM, Docker, Python

Responsible AI Face Authentication for Digital Payment Apps

Designed and implemented a cryptographically secured, Responsible-AI-powered face authentication system for web-based payment applications, incorporating ethical AI safeguards and encryption.

Technologies: FaceNet512, DeepFace, TensorFlow, OpenCV, Cryptography (Fernet), Flask

E-Commerce Web Applications (Nixzobd.com | Saafak.com)

Led a development team in delivering two fully operational e-commerce platforms to external clients, managing the full product lifecycle from requirements through deployment.

Technologies: Next.js, Tailwind CSS, Supabase, Vercel

PUBLICATIONS & ACADEMIC ENGAGEMENT

Research Interest: Applied Artificial Intelligence, Computer Vision in Security, Responsible AI.

Peer-Reviewed Publications (IEEE Xplore):

Responsible AI-Powered Face Authentication System for Web and Native Application.

2nd International Conference on Machine Learning & Autonomous Systems (ICMLAS) 2025, Stamford International University, Thailand.

AI-Powered Face Authentication System for Web and Native Apps.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Vice President 2022 – 2023

Rotaract Club of Dhaka South Dhaka, Bangladesh

Elevated the club's international profile by coordinating collaborative initiatives with international Rotaract chapters, increasing cross-border fellowship engagement.

General Secretary (Administration) Jul 2019 – Sep 2020

DMRC Debating Club Dhaka, Bangladesh

Organised and administered inter-college debate tournaments; led the team to a National Championship in Asian Parliamentary Debate.