Usman Ahmed

Software Engineer · AI & Data Science · Full Stack · Cloud & DevOps

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MSc AI & Data Science — Distinction, University of Hull (2025) · BSc Computer Science — Dean's Honourable List, NUCES (2023) · UK right to work — no sponsorship required

— PROFILE

Full-stack Software Engineer and AI/ML developer with 2+ years of production experience. Ships independently: 6 live products on Vercel spanning dermatology AI, content intelligence, B2B SaaS, property technology and professional services. Delivered enterprise systems for HSBC (1B+ daily transactions), Swiss Post (1M records/sec), Samsung Europe and Banorte. Technical co-founder of HQ Code. Proficient across Python, Java, C#, TypeScript, React, Next.js, Flutter and SQL.

— PROFESSIONAL EXPERIENCE

Software Engineer
Feb 2024 – Present

Wavetec FZCO · Dubai, UAE · Remote from London

- **Why** Enterprise clients needed scalable ticketing, queue management and appointment platforms integrated with modern communication channels across global markets.
- **How** Built Java, Python and C# .NET Core backend microservices with Kafka event streaming, Redis caching, REST APIs (OAuth 2.0, webhooks) and React.js/TypeScript frontends. Deployed on AWS and Azure via Docker, Kubernetes, Terraform and GitLab CI/CD. Integrated Meta WhatsApp Business API for real-time customer messaging.
- **Impact** 1M+ daily transactions; production for **HSBC (1B+ daily transactions)**, Swiss Post (1M records/sec), Samsung Europe, Delta Airlines, Banorte, K-Electric. Full Grafana/Prometheus observability across all services.

Junior Software Developer
Jun 2023 – Jan 2024

Ovrlod PVT LTD · Karachi, Pakistan

- **Why** Enterprise CMS clients needed modern full-stack implementations on Sitecore and Optimizely platforms with optimised data access for high-traffic consumer sites.
- **How** ASP.NET Core + C# backends, React.js frontends, Sitecore and Optimizely CMS integrations, PostgreSQL query optimisation (execution plans, indexing, connection pooling) across four concurrent client projects.
- **Impact** 1M+ monthly users; 30% reduction in p95 response times across all client projects.

Associate .NET Developer · Data Integration Intern
Jan 2023 – Aug 2022

Bits and Code / Astera Software · Riyadh, KSA · Karachi, Pakistan

- **Why** Legacy C# .NET Framework e-invoicing system creating operational downtime; data integration workflows at Astera requiring automation across 500+ GB of financial data.
- **How** Migrated e-invoicing to ASP.NET Core Web API on AWS (PostgreSQL Aurora), Docker-containerised, CI/CD deployed. Built Python ETL pipelines with Slowly Changing Dimensions, schema validation and automated job scheduling.
- **Impact** 30% downtime reduction for 100K+ users; 40% manual effort reduction in data pipelines. Awarded Special Mention — Challenge Seeker.

— PROJECTS

DermIQ
2025 – 2026

Next.js 15 · TypeScript · Python · PyTorch · ViT-Base · HuggingFace · Flask · Railway · Vercel · Grad-CAM · HAM10000

- **Why** Skin cancer is the world's most common cancer. The average wait for a dermatology appointment in the UK is 18+ weeks. No free, instant, research-grade screening tool existed for the public — only expensive private consultations or generic symptom checkers with no clinical credibility.
- **How** Fine-tuned Google's ViT-Base (Vision Transformer, 85.8M parameters, pre-trained on ImageNet-21k) on HAM10000 — 10,015 dermoscopic images from Vienna General Hospital and the University of Queensland — using weighted random sampling, weighted cross-entropy loss, fp16 training and learning rate warmup on a Kaggle T4 GPU over 15 epochs. Grad-CAM heatmaps show exactly which regions of the lesion drove the classification. Next.js frontend on Vercel; Python Flask inference server on Railway; model weights hosted on HuggingFace.
- **Impact** AUC 0.9808 — **outperforms the average dermatologist (AUC ~0.82)**. Classifies across 7 diagnostic categories including melanoma. Free, instant, no appointment required. No competitor combines research-grade accuracy (ViT-Base), clinical explainability (Grad-CAM) and zero cost to the user.

IdeaForge
2025 – 2026

Next.js 15 · TypeScript · YouTube Data API v3 · NewsAPI · OpenRouter · Promise.all · Vercel

- **Why** VidIQ and TubeBuddy charge £49/month for generic keyword data that ignores real-time news, doesn't match the creator's voice, and produces one platform's ideas at a time. No tool existed that grounded multi-platform content ideas in verified this-week news and each channel's exact title formula.
- **How** Input any YouTube channel name or URL → YouTube Data API v3 resolves the channel, pulls last 10 videos → AI extracts channel DNA (title formula, hook words, niche topics) → NewsAPI fetches real headlines with a strict 7-day filter (anti-hallucination: news is never AI-generated) →

Reddit discussions proxied via Google News RSS → 6 AI calls via OpenRouter fire: call 1 analyses the channel, call 2 generates YouTube ideas, calls 3–6 generate Instagram/TikTok/LinkedIn/Facebook content in parallel using Promise.all. Each idea cites a specific real news item.

- **Impact** 25 ready-to-publish ideas across 5 platforms per analysis, grounded in verified real news, in the creator's exact voice. Free vs VidIQ at £49/month. Anti-hallucination architecture eliminates the fake headline problem that affects every competitor's AI content tool.

HQ Code (Technical Co-Founder)

2024 – 2025

Next.js 16 · TypeScript · Tailwind CSS · Prisma 7 · PostgreSQL · Neon · JWT (jose) · Vercel

- **Why** UK corporates spend £56B/year on mental health issues but have no scientific tool to measure psychological safety or 'humanity' within their organisation — only expensive consultancy engagements with no repeatable benchmark. ESG reporting frameworks demand culture data but provide no measurement methodology.
- **How** Built a multi-tenant B2B SaaS platform with a 9-table PostgreSQL schema (Neon, companyId on every table for data isolation) — Company, User, Session, FormLink, FormResponse, HQScore, HRMetric, Assessment tables. JWT auth via jose (Edge runtime compatible; jsonwebtoken was not). Prisma 7 with prisma.config.ts for the breaking-change migration. Scoring engine (lib/scoring.ts) computes a Humanity Quotient across 3 pillars: Humanity Level (54%), Connection Level (35%), Consciousness Level (14%). Dashboard aggregates financial impact (£2.4M burnout/productivity/turnover), ESG bridge and quarterly trend charts. Three design system directions for different market segments.
- **Impact** First platform to translate soft culture metrics into hard financial numbers (£840K burnout + £1.1M productivity overspill + £460K turnover) and connect HQ Score → ESG Rating → Share Price Risk. No competitor offers scientific scoring, financial quantification and ESG integration in one platform. Built with co-founder Olga Diachenko.

CaseBridge

2024 – 2025

React.js · JavaScript · REST API · Vercel

- **Why** Legal case management workflows are fragmented across emails, spreadsheets and outdated legacy software — creating inefficiency and version-control problems for small legal teams.
- **How** Built with React.js consuming REST APIs for structured case data management. Stateless client-side application deployed to Vercel.
- **Impact** Centralised case tracking interface with clean, accessible UI. Live at casebridge-beta.vercel.app.

Southshore Projects

2024

React 18 · Vite · TypeScript · Tailwind CSS v3 · React Router v6 · Framer Motion · Cloudinary CDN · Vercel

- **Why** Southshore Projects Limited — a Wimbledon-based architecture, structural engineering and construction firm — had no professional web presence, losing potential clients to competitors with polished digital profiles despite superior technical capability.
- **How** React 18 component architecture with React Router v6 for client-side navigation across 6 pages (Home, About, Services, Gallery, Projects, Contact). Vite as build tool. Tailwind CSS v3 with custom design tokens: ink (navy), sand (warm off-white), brass (gold) — Fraunces display serif + Inter Tight body font. IntersectionObserver API for scroll-triggered reveal animations. React portal for mobile menu (fixes z-index stacking bugs). Hero video and all images served from Cloudinary CDN. vercel.json rewrite rule for SPA routing.
- **Impact** Full professional digital presence with hero video, animated image marquee, project showcase and service listings. Auto-deploys on every git push. Contact form UI fully built (backend integration pending).

Kreston Estates

2024

React · Vite · Express.js · Node.js · PostgreSQL · SQLite · JWT · bcrypt · multer · Nodemailer · Hostinger SMTP · Vercel

- **Why** Property management agencies rely on generic listing platforms (Rightmove, Zoopla) that charge per listing and provide no internal admin tooling — leaving agents without a unified system to manage properties, track enquiries and communicate with leads.
- **How** React + Vite frontend with a Node.js/Express backend — JWT authentication (bcrypt password hashing), multer for property image uploads, full CRUD API for properties and enquiries management, admin dashboard for internal team use, Nodemailer contact form via Hostinger SMTP for lead capture. PostgreSQL/SQLite backend. Deployed to Vercel.
- **Impact** Complete property management platform: public-facing listings, enquiries capture, admin dashboard and direct email lead delivery — all in one system at zero platform fees.

Autonomous Digiwatch (BSc Final Year Project)

2022 – 2023

FAST-NUCES · Python · C++ · TensorFlow · YOLO · OpenCV · CUDA · NVIDIA NSight

- **Why** Car theft in Pakistani cities costs millions annually. Existing CCTV systems require manual monitoring — a system that could detect theft automatically in real time would allow police response without human operators.
- **How** Built and labelled a 100,000+ image dataset. Trained and benchmarked LRCN, GRU and Vision Transformer architectures in ablation studies. Performance-critical C++ detection loop running YOLO on a CUDA GPU — GPU memory management and kernel execution profiling with NVIDIA NSight to hit real-time latency targets.
- **Impact** 95% real-time detection accuracy. First end-to-end smart-city car theft detection pipeline validated on a self-built dataset at this scale.

McDonald's Kiosk & Cashier System (BSc)

2022 – 2023

FAST-NUCES · React.js · C# · .NET Core · Azure Functions · PostgreSQL · REST API

- **Why** Simulating a high-throughput, multi-role POS system to demonstrate full-stack engineering at production scale — a practical proof that academic software engineering can match real commercial systems.
- **How** React.js frontend with distinct customer kiosk and cashier interfaces. C# .NET Core REST API backend with PostgreSQL. Azure Functions for async order processing under load. Full unit and integration test coverage.
- **Impact** Simulated 1M+ orders/day at 99.9% uptime. Two distinct user flows (customer and cashier) with real-time order sync.

Gym Trainer Cross-Platform App (BSc)

2021 – 2022

FAST-NUCES · Flutter · Dart · Java · PostgreSQL · Apache · Push Notifications

- **Why** Gym members in Pakistan had no digital scheduling tool — trainers managed sessions manually over WhatsApp, leading to missed sessions and poor member retention.
- **How** Flutter + Dart cross-platform iOS and Android app with real-time chat, workout scheduling, push notifications and progress tracking. Java backend with PostgreSQL on Apache.

- **Impact** Increased member schedule adherence by 25%. Single codebase serving iOS and Android from one Flutter project.

— EDUCATION

MSc Artificial Intelligence & Data Science · Distinction

Sep 2024 – Dec 2025

University of Hull · London, United Kingdom

- Graduated with Distinction — highest classification. Module grades: Fundamentals of Data Science (81), Research & Application in AI (74), Big Data & Data Mining (73), Dissertation (70), Programming for AI (70), Applied AI (69), Understanding AI (61).

BSc Computer Science · Dean's Honourable List

Sep 2019 – Jun 2023

FAST-NUCES · Karachi, Pakistan

- Dean's Honourable List. Key modules: Deep Learning, Computer Vision, Algorithms & Data Structures, OOP & Design Patterns, Computer Architecture, Cloud Computing, DevOps, Database Management, Discrete Mathematics.

— TECHNICAL SKILLS

Languages:	Python · Java · C# · TypeScript · JavaScript · Go · C/C++ · Dart · SQL · Bash
Frontend:	React.js · Next.js 15/16 · TypeScript · Tailwind CSS · Vite · SvelteKit · Flutter · Framer Motion
Backend:	Express.js · Spring Boot · ASP.NET Core · FastAPI · Node.js · REST · gRPC · GraphQL
AI / ML:	PyTorch · TensorFlow · Keras · ViT · scikit-learn · OpenCV · YOLO · CUDA · Grad-CAM · LLM APIs · RAG
ORM & Databases:	Prisma 7 · Entity Framework · PostgreSQL · SQL Server · SQLite · Redis · MongoDB · DynamoDB · Neon
Cloud & Infra:	AWS · Azure · Vercel · Railway · HuggingFace · Cloudinary · Docker · Kubernetes · Terraform
CI/CD & Tools:	GitLab CI · GitHub Actions · Vercel auto-deploy · TeamCity · Azure DevOps · Git
Observability:	Prometheus · Grafana · OpenTelemetry · Sentry · Structured Logging

— CERTIFICATIONS & LEADERSHIP

- Data Science Career Path — Udemy (2024) · Analysing & Visualising Data with Tableau and Python — Udemy (2023) · Deep Learning with PyTorch — DataCamp (2022)
- Vice President, ACM Chapter @ NUCES-FAST (2023) — organised technical events, mentored junior members · General Secretary, ACM Chapter (2022)

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