

MUHAMMAD DANISH ASIM

Software Engineer

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Education

Masters in Cloud Engineering, University of Maryland, College Park, MD Aug, 2024 - May, 2026
Relevant Coursework: Cloud Computing, Linux, Database, LLMs **CGPA 3.82/4.00**

Bachelor in Electrical Engineering, University of the Punjab, Pakistan Oct, 2017 - Oct, 2021
Relevant Coursework: Object Oriented Programming, Computer Fundamentals, Data Structures **CGPA 3.23/4.00**

Skills

JavaScript, TypeScript, Python, SQL, HTML, CSS, Tailwind CSS, Angular, React, Redux, React Native, NextJS, NodeJS, ExpressJS, NestJS, FastAPI, Django, GraphQL, Apache Kafka, Bull Queue, PostgreSQL, Oracle, MongoDB, DynamoDB, TypeORM, Redis, AWS, GCP, CI/CD Pipelines, Docker, Kubernetes, Tencent, Graphana, PagerDuty, Datadog, Git, OpenAI, Gemini, PineconeDB, ChromaDB, LangChain, Pytorch, Pandas, Numpy, Linux, Shell Scripting, JIRA, Confluence, Postman, MS Office

Work Experience

Software Engineer Sep 2024 - Aug 2025
University of Michigan **Dearborn, MI**

- Reduced **AWS infrastructure costs by 40% (\$1,000/month)** for the Threat Intelligence Portal by migrating containerized workloads from **ECS to Fargate**, eliminating idle compute overhead & right-sizing resource allocation.
- Established **CI/CD pipelines** using **GitHub Actions** for automated build, test, & deployment of **5+ microservices**, reducing average deployment time from **~45 minutes to under 1 minute** & enabling same-day release cycles.
- Delivered a full-stack **Intelligent Threat Analysis** platform using **React, FastAPI, & AWS Cognito**, serving **100 security analysts** with real-time threat insights & AI-driven mitigation strategies, reducing manual triage time by **30%**.
- Engineered a **RAG pipeline** ingesting **315K+ CVE records**, generating vector embeddings via **OpenAI** & indexing into **OpenSearch** for semantic threat search; applied prompt engineering techniques to deliver context-aware mitigation strategies, improving analyst response accuracy by **60%**.
- Designed & deployed an automated **ETL pipeline** in **Python** to ingest & normalize daily CVE feeds into **DynamoDB**, enabling up-to-date vulnerability data for downstream RAG & threat analysis workflows.

Senior Software Engineer June 2023 - Aug 2024
Makro Pro **Bangkok, Thailand**

- Architected a **Kafka-based event-driven synchronization layer** replacing legacy cron jobs running on **10-minute to 24-hour batch cycles**, streaming real-time product behavior, status, store configurations, & eligibility flag updates from **Oracle RMS** to the product service across **150+ stores & 376K+ SKUs**; eliminated data staleness & drove a **40% revenue increase** through improved product data accuracy.
- Led end-to-end design & implementation of a **Pre-Order Slot Management System** enabling merchants to configure weekly recurring & time-based ordering windows, reducing inventory overstock risk by **70% across 58K+ SKUs** & saving **~\$5,000/month** in carrying costs; built on **NestJS & PostgreSQL** with a **Retool** ops dashboard centralizing pre-order tracking & purchase order management previously handled manually.
- Eliminated **N+1 query bottlenecks** caused by unoptimized nested resolvers in the **GraphQL** product layer serving **376K+ SKUs**, implementing **DataLoader**-based batching & caching in **NestJS**; partnered with the frontend team to optimize query shapes, reducing average response time from **~90ms to ~50ms**.
- Led **10+ feature onboarding training sessions** for **100+ internal & external users** across **9 teams**, accelerating platform adoption & reducing onboarding time by **65%**.
- Designed & implemented a unified **product category database architecture** using a **Materialized Path** tree structure in **PostgreSQL** across **376K+ SKUs**, consolidating fragmented data across **3 internal platforms (Strapi, Mirakl, Medusa)** into a single source of truth; built internal **REST APIs** to integrate category data across systems, eliminating mismatch errors entirely & reducing category management effort by **67%**.
- Architected a **self-hosted media management platform** using **NestJS & AWS S3** with a **Retool**-powered ops dashboard, serving **50+ users across 3 internal teams**; eliminated **100% of product creation failures** caused by unavailable media assets, unblocking **1K+ daily catalog operations** & reducing product release delays from **up to 24 hours to near zero**.
- Implemented a scalable **asynchronous product bulk ingestion pipeline** using **Kafka & NestJS** with schema validation, batched queue processing, & structured error logging; reduced merchant data resubmission by **45%** across **50K+ daily product updates** & improved import auditability.
- Established **DataDog** observability & **PagerDuty** alerting across core microservices serving **5M+ users**, reducing mean time to detection (**MTTD**) by **80%** through proactive monitoring of latency, error rates, & resource utilization; enabled rapid incident response during high-traffic promotional events, reducing production incidents by **80%**.
- Engineered an in-house **bulk product attributes update API** using **NestJS, Kafka, & Redis**, handled **1K+ products across 150 stores & 6+ channels per product**, reducing content team attribute update time by **95%** (**~2 hours** → **~6 minutes**).

- Spearheaded **end-to-end migration from Mirakl** to an in-house **Next.js & NestJS** Product Management Platform in **2 months with a 2-engineer team**, rebuilding core capabilities including product uploads, offer configuration, & bulk operations management; migrated **300K+ products across 150+ stores**, eliminating third-party platform dependency & saving **20% of first-party revenue**.
- Co-engineered an **automated product data synchronization pipeline** using frequency-optimized cron scheduling to sync product behavior, status, store configurations, & eligibility flags across **100 stores & 10 channels**; implemented **Slack-based monitoring** for real-time pipeline visibility, reducing daily sync errors from **1,000+ to under 20 products (~99%)** & cutting cross-team communication overhead by **80%**.
- Collaborated with a senior engineer to develop a **Mirakl webhook consumption system** in **NestJS**, processing **100K+ daily webhook events** from **700+ third-party sellers** with **Redis**-based rate limiting; reduced webhook error rate by **75%** & implemented polling-based sync to capture updates outside webhook coverage.
- Optimized **React Native** performance using **Flipper** profiling & **Shopify FlashList**, resolving JS thread locks & UI frame drops; improved rendering from **25fps → 60fps (80%)** & reduced crash rate by **95%** across **3M+ users**, eliminating crashes that previously affected **48% of sessions**.

Software Engineer I

Retailo Technologies Pvt. Ltd

April 2022 – May 2023

Riyadh, Saudi Arabia

- Led consolidation of **12 internal applications** into a **microfrontend monorepo** using **Next.js**, implementing a **shared design system & component-level RBAC** across **6 developer teams**; reduced code duplication by **70%** & delivered a unified, secure application platform serving **10 SaaS clients**.
- Architected a **multi-tenant request isolation middleware** in **NestJS**, enforcing client-level data access controls across **10 SaaS clients** processing **1M+ daily requests**; prevented unauthorized cross-tenant data access attempts in production, scaling from **3 → 10 clients** with **zero latency impact** & ensuring complete data isolation between tenants.
- Engineered a **real-time agent location tracking pipeline** using **Kafka & DynamoDB** to ingest & store GPS data from **150+ field agents** across **Saudi Arabia, UAE, & Pakistan**; generated training data that improved an internal **ML-based route optimization model** & increased daily revenue by **15%**.
- Led frontend development of a **Spot Sale feature** in **React Native, TypeScript, & Redux Saga**, enabling **150+ delivery agents** to sell remaining vehicle inventory to en-route customers; eliminated last-mile delivery costs entirely & recovered **\$10,000+/day** in previously wasted inventory value, creating a **net-new revenue stream** from stock that would otherwise go unsold.
- Developed a **React Native, Redux Saga, & TypeScript** logistics management platform consolidating **3 legacy apps** into a unified agent workflow, enabling route management & order delivery tracking for **50+ logistics agents**; reduced operational errors by **80%** & centralized tech ownership under a single team.
- Collaborated with a **4-developer, 2-PM team** to replace **Odoo** with a custom in-house platform in **React, TypeScript, Tailwind, & Redux**, owning end-to-end development of **vendor management & purchase order modules** serving **700 vendors & 1,000+ daily purchase orders** across **60+ users in 3 regions**; delivered the full platform in **3 months**, saving **\$4,000/month** in licensing costs.

Software Engineer

Hungry EPOS

Nov 2021 – May 2022

Glasgow, Scotland

- Developed an external-facing **SaaS product management onboarding platform** in **Angular & TypeScript**, collaborating with a designer & product manager to deliver a polished user experience; reduced client onboarding time by **55%** & decreased user-reported complaints by **45%** across **10 vendor organizations**.

Technical Projects

Green Minds

NestJS, PostgreSQL, Next.js 15, Redis

- Built a **multi-tenant consulting management platform** with **JWT auth + RBAC**, secure account lockout, & an admin dashboard delivering CRUD, search/filtering, & **React Query/Zod**-validated workflows.

Abet Accreditation Documentation System

FastAPI, PostgreSQL, React, Azure OpenAI

- Automated accreditation report generation, producing a complete course assessment report from syllabus, roster, & grades in a single workflow via **FastAPI/PostgreSQL + React/MUI** platform with **S3 uploads & Azure OpenAI RAG** extraction.

AWS Secure E-Commerce Deployment

AWS VPC, ALB, Auto Scaling, RDS, WAF

- Architected a highly available e-commerce cloud infrastructure using **VPC, ALB, Auto Scaling, & Multi-AZ RDS**, implementing security best practices with **WAF, TLS, & Secrets Manager** across two availability zones.

Video Uploader Service EKS Deployment

AWS EKS, Terraform, Helm, CloudWatch

- Provisioned a production-grade **AWS EKS cluster** across **3 availability zones** using **Terraform & Helm**, configuring **IRSA, AWS Load Balancer Controller, & CloudWatch** alarms/logging across two auto-scaling managed node groups.

Taxi Booking Management System

Angular 13, NestJS, Prisma, PostgreSQL

- Built & self-hosted a full-stack **Booking Management System** on an internal network, enabling **150+ users** across driver, attendant, & client roles to manage bookings, wage reporting, & compliance documents via **JWT-secured APIs**; reduced administrative overhead by **60%** through automated weekly booking bundles & digital compliance document management.

Certifications

AWS Certified Cloud Practitioner (Oct 2025)

AWS Associate Solutions Architect (Feb 2026)