

# Mohammad Irshad

## AI & Backend Engineer

### CONTACT

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**Location:** Dammam, Saudi Arabia (34223) — Current Residence

**Nationality:** Pakistani | Residence permit: 2614906408

### ABOUT ME

AI & Backend Engineer with 3+ years of experience building production-grade platforms end to end — from scalable Node.js/NestJS backends and Next.js frontends to generative-AI microservices. I have shipped multi-vendor marketplaces, e-commerce and delivery systems with real-time chat and video, payments, logistics, and ZATCA-compliant invoicing, and have engineered RAG pipelines, LLM assistants, and computer-vision systems on top of OpenAI and AWS. I focus on clean, secure, maintainable architectures that turn complex requirements into reliable products.

### WORK EXPERIENCE

**Bawabat** | Dammam, Saudi Arabia

**AI & Backend Engineer** | 01/06/2025 – Current

#### ***Bawabat — Multi-vendor Marketplace & Logistics Platform***

- Engineered a large-scale marketplace and service-provider platform with a modular NestJS/TypeScript backend spanning 35+ domains (users, businesses, providers, marketplace listings, orders, cart, coupons, reviews, logistics, shipments, campaigns, moderation, and more).
- Built real-time communication features — in-app chat (Ably) and audio/video calls (Agora) — plus Firebase push notifications for live order, booking, and messaging updates.
- Implemented secure authentication and authorization with JWT, Google OAuth2, role-based access control, and request throttling; modeled data with TypeORM over MySQL using versioned migrations across core and logistics databases.

- Integrated AWS services end to end: S3 and CloudFront (signed URLs) for media, SES for transactional email, and Comprehend/Translate to power multilingual (English/Arabic) content via nestjs-i18n.
- Developed the customer-facing web app and admin portal in Next.js (App Router) with React Query, React Hook Form, Zod, Tailwind CSS, Radix UI, Google Maps, and Recharts dashboards; fully bilingual with next-intl.

### ***OxygenLenses — Eyewear E-commerce***

- Built the backend in Express with Drizzle ORM (MySQL/PostgreSQL), JWT auth, image uploads (Multer), Mailjet email, and Zod validation, with database migrations and an admin-bootstrap workflow.
- Delivered a Next.js storefront and a drag-and-drop admin dashboard (dnd-kit, shadcn/ui, React Query, React Hook Form) for catalog, ordering, and content management.

### ***Rider — E-commerce & Delivery Platform***

- Developed a Node.js/Express backend on MongoDB (Mongoose) with AWS S3 media storage, Firebase push notifications, and JWT-secured REST APIs.
- Implemented ZATCA-compliant QR e-invoicing and automated PDF invoice generation for Saudi tax compliance.
- Built a Next.js storefront and a feature-rich MUI admin panel with analytics, charts, and CSV/PDF export.

### **Luminous Rays LLC | Remote, United States**

#### **AI Engineer | 01/08/2024 – 31/05/2025**

- Built a Retrieval-Augmented Generation (RAG) recommendation engine using OpenAI embeddings (text-embedding-3-small) and Pinecone for semantic search across 10,000+ service listings.
- Developed a multi-modal, context-aware AI chatbot (GPT-4o-mini) with persistent chat history in MongoDB for automated customer support.
- Integrated OpenAI Whisper to transcribe voice queries and auto-recommend services, and GPT-4 Vision to classify and filter inappropriate user-uploaded images.
- Architected a multi-modal dispute-resolution system that processes booking data, chats, timelines, costs, and visual evidence to produce automated verdicts (FavorCustomer, FavorProvider, PartialRefund, Dismissed) with confidence scoring.
- Exposed AI capabilities as a modular FastAPI microservice with independent routers; containerized with Docker and configured CORS for secure production integration.

### **IR Solutions | Islamabad, Pakistan**

#### **AI Engineer | 01/01/2024 – 31/07/2024**

- Built an image-processing pipeline to automatically remove car-image backgrounds using YOLO-based segmentation with OpenCV (region detection, masking, contour-based post-processing).
- Developed a hospital assistant chatbot with OpenAI GPT models using RAG over a medical knowledge base and OpenAI Function Calling to schedule appointments via structured APIs.
- Created a photo-mosaic application (image tiling, color averaging, tile replacement) and deployed RESTful APIs over Stable Diffusion for parameterized text-to-image generation.

**Stallions.AI** | Islamabad, Pakistan

**AI Engineer** | 05/06/2023 – 31/12/2023

- Built an interactive financial-metrics dashboard in Streamlit/Python that ingests CSV/Excel data, computes key metrics (revenue growth, expense ratios), and visualizes trends with Matplotlib/Seaborn.
- Engineered a generative-AI financial chatbot integrating OpenAI with web scraping, prompt engineering, similarity search, and memory-based multi-turn context with real-time web retrieval.
- Developed a face-similarity and retrieval system using OpenCV and deep-learning embeddings (FaceNet/ResNet), indexing vectors in Pinecone for fast top-N similarity matching.

## SKILLS

**Programming Languages:** TypeScript, JavaScript, Python, C++, SQL, C

**Backend:** Node.js, NestJS, Express.js, FastAPI, RESTful APIs, Microservices

**Frontend:** Next.js (App Router), React, Tailwind CSS, Radix UI / shadcn, React Query, React Hook Form, Zod, MUI

**Databases & ORMs:** MySQL, PostgreSQL, MongoDB, TypeORM, Drizzle ORM, Mongoose, Pinecone, Redis (Upstash)

**Cloud & DevOps:** AWS (S3, SES, CloudFront, Comprehend, Translate), Firebase, Docker

**Real-time & Integrations:** Ably (chat), Agora (audio/video), Firebase Cloud Messaging, Payment gateways, ZATCA e-invoicing, Google OAuth

**Generative AI:** LLMs, RAG, Prompt Engineering, Function Calling, Agents, OpenAI (GPT-4o, Whisper, Vision), AWS Comprehend, Pinecone, ChromaDB, LangChain

**Machine Learning / Deep Learning:** Feature Engineering, Supervised & Unsupervised Learning, ANN, CNN, RNN, Data Processing & Visualization

**Computer Vision:** Image Classification, Object Detection, Image Segmentation, Image Manipulation, OpenCV

**Frameworks & Libraries:** PyTorch, TensorFlow, Keras, Scikit-learn, NumPy, Pandas, Matplotlib, Scrapy, Selenium, Streamlit

**Security:** JWT, OAuth2, RBAC, API security, Rate limiting, Validation

**Tools:** Git, GitHub, Postman, Docker

## EDUCATION

**B.Sc. Computer Software Engineering** | University of Engineering and Technology, Mardan

23/09/2019 – 14/07/2023 | Mardan, Pakistan

**Final grade:** 3.27 | EQF level 6

**Thesis:** Real-Time Sign Language Recognition

**Website:** <https://www.uetmardan.edu.pk>

## LANGUAGES

English | Urdu | Arabic

## CERTIFICATIONS

**Generative AI with Large Language Models** — Coursera

<https://coursera.org/share/b093886aac78115156daab46bd453a22>

**Data Analyst: Professional Certificate in Data Analysis** — Udemy

<https://www.udemy.com/certificate/UC-a0529d98-98dc-4f72-8a96-8f414fadf58c/>