

MUHAMMAD ANAS NASIR

Software Engineer • Aspiring Artificial Intelligence Researcher

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ABOUT ME

Software Engineer with 1+ year of professional experience in full-stack development and intelligent system design, complemented by strong academic foundations in Artificial Intelligence, Machine Learning, and Data Science. Experienced in building end-to-end data-driven systems from data acquisition and preprocessing to model integration and scalable cloud deployment. Demonstrated research interest in NLP, LLM integration, and real-time data pipelines. Seeking a Master's degree to deepen theoretical understanding of machine learning algorithms, statistical modeling, and large-scale data systems, with the goal of contributing to research-driven innovation in intelligent technologies.

EDUCATION

BACHELOR OF SCIENCE – SOFTWARE ENGINEERING | October 2021 – September 2025

NED University of Engineering & Technology (Program offered in Usman Institute of Technology) – Karachi, Pakistan

- **Final Year Thesis:** IoT-Based Speech-to-Text Device – Engineered a standalone transcription system integrating ESP32 hardware with OpenAI Whisper and Pyannote for automated, speaker-aware meeting documentation.
- **Relevant Coursework:** Artificial Intelligence & Expert Systems, Machine Learning, Data Structures & Algorithms, Multivariate Calculus, Linear Algebra, Probability & Statistics, Database Systems.

HIGHER SECONDARY – PRE-ENGINEERING | July 2019 – July 2021

DHA College & School System SKBZ Campus – Karachi, Pakistan

SECONDARY SCHOOL – SCIENCE | July 2017 – March 2019

Gulistan Shah Abdul Latif Boys Secondary School S.M.C.H.S. – Karachi, Pakistan

EXPERIENCE

June 2025 – Present

SOFTWARE ENGINEER – PRODIGY TECHNOLOGIES, Karachi, Pakistan

- Designed a scalable, high-throughput PostgreSQL telemetry pipeline with Supabase real-time subscriptions and advanced Row-Level Security (RLS), processing device telemetry every 5 seconds from ESP32 edge devices while enforcing strict multi-tenant data isolation and zero cross-tenant leakage.
- Engineered a secure authentication and authorization framework using Supabase Auth, JWT-based session management, and fine-grained Role-Based Access Control (RBAC), protecting 14+ database endpoints and strengthening application-level security across the entire stack.
- Built and deployed a full-stack TypeScript application leveraging React 19, Vite build tooling, and PostgreSQL backend services, hosted on Vercel with automated CI/CD pipelines enabling zero-downtime deployments and streamlined release management.
- Developed production-ready ESP32 firmware with HTTPS REST integration, WiFiManager-based provisioning, automated MAC-address-driven device registration, and persistent EEPROM credential storage, ensuring reliable edge-to-cloud connectivity.
- Integrated AWS cloud services including Amazon S3 for secure telemetry archiving and Amazon IAM for controlled service access, enabling scalable storage, centralized logging, and future-ready analytics integration within a cloud-native architecture.

January 2025 – March 2025

FREELANCE SOFTWARE ENGINEER – SELF EMPLOYED, Karachi, Pakistan

- FinTech ERP System: Designed and deployed a custom Raw Material Management System using TypeScript, Next.js, and Prisma ORM.
- Financial Data Integrity: Engineered an automated double-entry ledger system with SQLite, ensuring strict financial accuracy and real-time stock validation.
- Consultancy: Delivered professional web solutions for diverse clients, managing the full lifecycle from requirements gathering to deployment.

July 2024 – November 2024

FULL STACK DEVELOPER INTERN – AHK ENTERPRISES, Karachi, Pakistan

- Developed full-stack web applications integrating React.js frontends with Python Flask backends, implementing secure JWT authentication and session management for 200+ active users
- Optimized database queries and implemented Redis caching strategy, improving API response times by 35% and reducing database load by 25% during peak traffic
- Designed and documented RESTful API endpoints following OpenAPI specification, ensuring consistent error handling and input validation across 15+ endpoints
- Participated in Agile sprints with daily standups and weekly retrospectives, delivering 12+ features on schedule while maintaining 90%+ code coverage through unit testing.

TECHNICAL PROJECTS & RESEARCH INTERESTS

IoT-Based Speech-to-Text & Summarization Device – Final Year Thesis

Tech Stack: React Native, Python (Flask), ESP32, AWS S3, Whisper API, Pyannote.

- Objective: Built a cross-platform AI-driven system to automate business documentation through speech recognition and intelligent processing.
- Contribution: Engineered an end-to-end pipeline where ESP32 devices capture audio and invoke a Python-based backend to perform speech-to-text transcription using Whisper and speaker diarization using Pyannote, with processed outputs stored and managed via cloud infrastructure.

LinkedIn Job Analyzer with AI – Personal Project

Tech Stack: Python, Flask, SQLAlchemy, BeautifulSoup, Google Gemini AI.

- Objective: Built an AI-powered analytics tool to scrape and analyze job market trends.
- Contribution: Engineered a robust web scraper with retry logic to aggregate data from 100+ job postings. Integrated Google Gemini AI to perform semantic analysis on job descriptions, automatically extracting and visualizing high-demand skill trends.

IoT-Based Smart Food Spoilage & Gas Leakage Detection – Machine Learning Project

Tech Stack: Python (TensorFlow, Keras), Edge Impulse, Wio Terminal (ARM Cortex-M4F), Arduino C++.

- Objective: Developed an intelligent Edge AI system for real-time food freshness monitoring and safety.
- Contribution: Engineered an end-to-end ML pipeline processing 6,700+ sensor samples (NO₂, VOC, CO) with 95%+ accuracy. Achieved sub-100ms inference latency by optimizing Neural Network architectures using TensorFlow Lite quantization for embedded deployment.

Agentic AI Expense Tracker – Personal Project

Tech Stack: React Native, Python (FastAPI), LLM Integration, Supabase.

- Objective: Built a full-stack mobile application for automated expense categorization using AI agents.
- Contribution: Developed a React Native frontend with a FastAPI backend, integrating LLM-powered workflows and Supabase for authentication and real-time data management.

TECHNICAL SKILLS

- **Programming:** Python (Advanced), C++, JavaScript, TypeScript.
- **Artificial Intelligence & Data Science:** Machine Learning, Deep Learning, Supervised Learning, Natural Language Processing, LLM Integration (Whisper, Pyannote), Data Preprocessing & Feature Engineering, Prompt Engineering.
- **Full-Stack Development:** React.js, Next.js, Flask, FastAPI, Node.js, RESTful API Design.
- **Data & Cloud Systems:** PostgreSQL, MySQL, SQLite, SQLAlchemy, Prisma ORM, AWS (S3, IAM, Lambda), Supabase.
- **Systems & Deployment:** Docker, CI/CD, Git, ESP32 Integration, Edge-to-Cloud Pipelines.

CERTIFICATIONS AND SPECIALIZED TRAINING

- Introduction to Artificial Intelligence (LinkedIn Learning) – August 2024
- Supervised Machine Learning: Regression and Classification (DeepLearning.AI) – August 2024
- Python for Data Science, AI & Development (IBM) – August 2024
- Incorta AI Training Workshop (aion DIGITAL) – August 2025
- Microsoft Python Development Specialization (Microsoft via Coursera) – October 2025

LANGUAGES

- **English:** Full Professional Proficiency
- **Urdu:** Native