

Mehroz Afzal

Principal Software Engineer / Mobile Application Engineer / NodeJs and React Expert / Flutter / AI Engineer

 Lahore, Pakistan

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Professional Summary

Principal Software Engineer with 8+ years of experience in building scalable, high-performance mobile and web applications using Flutter, Node.js, React.js, Next.js, React Native, Swift and SwiftUI and cloud platforms (AWS/GCP). Adept at leading cross-functional teams, architecting microservices, implementing DevOps pipelines, and delivering robust digital products. Strong command of full-stack development, cloud infrastructure, CI/CD, and Agile practices.

Technical Skills

Languages: Dart, JavaScript, TypeScript, Python, Java, SQL, Bash

Mobile: Flutter, React Native, Firebase, Android (Java/Kotlin), iOS (Swift, SwiftUI)

Frontend: React.js, Next.js, Vue.js, TailwindCSS, Bootstrap, HTML5, CSS3

Backend: Node.js, Express.js, NestJS, MongoDB, PostgreSQL, Redis, REST, GraphQL, MySQL, DynamoDB

DevOps: Docker, GitHub Actions, PM2, Nginx, Jenkins, GitLab CI, Terraform

Cloud: AWS (EC2, S3, Lambda, SNS, SQS, CloudFront), GCP (Firestore, Pub/Sub), Firebase

Tools: Jira, Notion, Postman, Swagger, Figma, Git, VS Code, Android Studio, PyCharm, Hubstaff

Methodologies: Agile, Scrum, TDD, Clean Architecture, SOLID, DRY, DDD

AI/ML & Tools: TensorFlow Lite, ONNX, Hugging Face Transformers, OpenAI APIs, LangChain, Whisper, FastAPI, Pinecone, FAISS, Vector Databases, Gradio, Streamlit, Flask, Scikit-learn, Numpy, Pandas, Matplotlib, Weights & Biases, MLflow, Custom LLM Fine-tuning (LoRA, PEFT), RAG Pipelines, On-Device LLMs (GPTQ, GGUF), Sentence Transformers, Transformers.js

Professional Experience

Chief Technology Consultant / Principal Engineer

CodeMiners IT & Consultancy – United States (Remote)

Nov 2019 – Present

- Designed and led development of end-to-end SaaS platforms using Flutter, Node.js, MongoDB, and AWS, optimized for scalability and performance.
- Architected microservices with NestJS, Redis, and PostgreSQL in Dockerized environments deployed via ECS Fargate.
- Integrated payment systems (Stripe, Razorpay), real-time features (Socket.IO), and notifications (Firebase, SNS).
- Engineered AI-first features including:
 - Fine-tuned LLMs (GPT-2/GPT-Neo) on domain-specific datasets using Hugging Face Transformers.
 - Developed in-app AI assistants using FastAPI + LangChain for RAG-based document summarization.
 - Embedded Whisper for multilingual voice-to-text transcription and on-device summarization using ONNX/G-GUF.
 - Deployed vector DB search using FAISS/Pinecone for personalized recommendation systems.
- Delivered AI observability with MLflow and Weights & Biases for tracking experiments and model performance.

Key Projects:

Parchi App:

- Flutter app integrating a GPT-2 fine-tuned chatbot for user support, Firebase Firestore for real-time DB, Isar for local persistence, and Stripe for payments.
- Achieved 10,000+ downloads within the first 3 months; reduced support queries by 35% with in-app GPT chatbot.

HelperLogs Web Portal:

- A React + Node.js dashboard with AI-based route optimization and ETA prediction using TensorFlow and vector-based matching via Pinecone.
- Improved ETA prediction accuracy by 28%; reduced manual dispatching by 40% through AI automation.

Senior Full Stack Mobile Engineer

MUST Company – Seoul , South Korea (Remote)

February 2024 - August 2024

- Built mobile apps in Flutter using GetX, Dio, and Firebase for real-time user interaction.
- Designed backend with Express.js + MongoDB, hosted via Heroku, and included REST APIs and modular architecture.
- Developed embedded LLM utilities with ONNX/GGML for smart field suggestions and autocomplete directly on-device.
- Built AI components:
 - Custom FAQ generator using OpenAI's GPT-3.5 Turbo + vector embeddings.
 - LangChain-powered smart search with Pinecone for semantic retrieval across FAQs and policy docs.
 - On-device GPT-J inference using quantized LLMs (GGUF) with Whisper integration for speech queries
- **Key Project:**
 - **Offer Management App:**
 - Flutter app with QR-based offer validation and campaign assistant powered by LangChain + GPT-3.5; included AI-driven customer behavior insights and auto content suggestions.
 - Reduced manual campaign design time by 50% using AI-assisted recommendations; increased QR-based redemption rate by 22%.
 - **Must Break:**
 - Developed an AI-powered real-time translation engine using Whisper and on-device LLMs to enable seamless multilingual communication during team meetings.
 - Decreased language-related meeting miscommunications by over 60%; achieved sub-300ms latency on live translations.

Regional Projects Lead – Automation & Systems

Ittehad Engineering & Services – Karachi, Pakistan

November 2021 – October 2022

- Supervised deployment of SCADA and monitoring solutions across industrial facilities using Node-RED, InfluxDB, and Grafana dashboards.
- Built Python microservices to capture sensor data over Modbus RTU, and exposed secure APIs via FastAPI.
- Designed a field reporting dashboard using Vue.js + Firebase to monitor technician activities.
- Orchestrated MQTT and OPC-UA data pipelines for real-time data processing and reporting.
- **Key Project:**
 - **Factory IoT Monitoring Platform:** Built a live dashboard that visualized energy consumption, machine status, and downtime metrics.
 - Cut reporting delays by 45% and improved on-site data collection accuracy by 30%.

Systems Engineer – Web & Field Utilities

Ittehad Engineering & Services – Karachi, Pakistan

June 2019 – November 2021

- Developed internal tools using Angular + Firebase for project tracking, attendance, and material logging.
- Built a Flutter-based mobile app for field staff to submit reports and perform checklists in offline mode with local sync using SQLite.
- Created REST APIs with Express.js and authentication with Firebase JWT.
- Worked on asset tagging system using NFC + QR Code reader and label printers
- **Key Project:**
 - **Project Tracker App:**
 - A complete internal project tracking system with Gantt chart view, field inspection module, and push notifications.
 - Cut reporting delays by 45% and improved on-site data collection accuracy by 30%.

Associate Software & Systems Engineer

Engineering Enterprises – Lahore, Pakistan

August 2017 – August 2019

- Built desktop utilities in Electron.js to generate project BOQs and perform cost estimation.
- Wrote Python scripts for sensor testing, calibration, and serial port communication (RS-485).
- Created dashboards using Vue.js and Chart.js to visualize test results and QA data.
- Assisted with software installation on field controllers and updating firmware via CLI tools.

- **Key Project:**
 - **BOQ Generator Tool:**
 - Built a standalone app that engineers used to estimate costs and generate dynamic client proposals.
 - Reduced estimation preparation time by 70%; standardized costing procedures across departments.

Procter & Gamble

IT Intern – Digital Transformation & Operations Insight - Karachi, Pakistan

June 2018 – August 2018

- Worked with the Digital Transformation team to prototype internal tools for automation of inventory reporting and quality audit data, using Google App Script, Google Sheets API, and JavaScript to streamline internal processes.
- Assisted in the creation of dashboards and automated performance tracking reports that integrated with legacy ERP systems for real-time visualization.
- Participated in early exploration of AI/ML-based anomaly detection in operations, gaining foundational experience in preparing data for modeling and evaluating trends.
- Shadowed senior IT and engineering leads working on real-time monitoring and alert systems, contributing insights into business logic and system performance expectations.
- Developed a strong understanding of enterprise-scale system integration, cloud-first development principles, and IT operations in a high-performance manufacturing environment.
- Automated dashboards decreased manual data collection efforts by 60%; contributed to pilot ML system with 75% anomaly detection accuracy in QA datasets.

Meet The Counselors Foundation

Trainee Software Engineer – QA & Automation Support - Lahore, Pakistan

August 2016 – August 2017

- Supported the engineering and software documentation team in digitizing field reports, QA checklists, and SOPs by developing internal tools using Excel Macros and basic Python scripting for data parsing and report automation.
- Collaborated with cross-functional teams to optimize QA workflows and reduce manual documentation overhead by designing reusable templates and automation routines.
- Participated in client meetings to gather technical requirements and assisted in translating business needs into structured documentation and field-ready tools.
- Contributed to a pilot tool for inspection task tracking that inspired the later digitalization efforts adopted in field reporting platforms.
- Gained early exposure to software documentation standards, QA process automation, and field engineering data systems, which later informed scalable app architecture.
- Improved documentation efficiency by 50% using custom macros and templates; enhanced QA checklist accuracy and traceability.

Certifications

- Registered Engineer – Pakistan Engineering Council (PEC) – Mar 2020
- Advanced Flutter Development – Udemy
- AWS Certified Cloud Practitioner (In Progress)
- Introduction to Generative AI – Google Cloud (Coursera)
- Building LLM Applications with LangChain – DeepLearning.AI
- Fine-tuning Transformers – Hugging Face
- Deploying LLMs with ONNX and GGUF – Private Course