

HASAN AFZAL

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PROFESSIONAL SUMMARY

Senior Software & AI Engineer with 5+ years of experience architecting scalable SaaS platforms and high-performance LLM pipelines. Proven track record of leading teams to modernize legacy monoliths into microservices, achieving a **60% reduction in infrastructure costs** and scaling systems to **1M+ monthly users**. Expert in combining robust backend engineering (Ruby on Rails, Python) with cutting-edge AI agents (RAG, LangChain) to drive revenue growth and operational efficiency.

TECHNICAL SKILLS

Languages: Ruby, Python, TypeScript, JavaScript (ES6+), SQL, Bash.

Frameworks: Ruby on Rails, FastAPI, Next.js, React, Node.js, TailwindCSS.

AI & LLM Technologies: RAG Systems, LangChain, LLM Fine-tuning, AI Agents, OpenAI API, Prompt Chaining, Pinecone.

Cloud & Infrastructure: AWS (EC2, Lambda, S3, CloudFront), Docker, Nginx, CI/CD Pipelines, Terraform.

Databases: PostgreSQL, Redis, Elasticsearch, MongoDB, MySQL, Vector Databases.

PROFESSIONAL EXPERIENCE

3Solutions

Remote

Team Lead & Senior Software Engineer

April 2022 – Present

Led a full-stack team of **15+ engineers** to architect legacy modernizations, transitioning monoliths into scalable microservices.

Orchestrated a **Strangler Fig migration** (React/Rails) with **route-by-route** routing and **unified authentication**, implementing a **Query Pattern** that reduced infrastructure costs by **60%**.

Designed a **Ticket Inventory System** for an Event platform (**1M+ users**), optimizing queries to reduce page loads from **15s to 1-2s** and handling massive concurrency.

Integrated **Elasticsearch** for high-speed Natural Language Search and architected advanced **AI pipelines** (LLM fine-tuning, RAG) and **FFmpeg** media processing.

Southville Solutions

Lahore, Pakistan

Software Engineer

July 2021 – April 2023

Engineered scalable backend services for Fintech/HR using **Docker** and **AWS EBS** for persistent storage reliability.

Developed financial infrastructure (secure checkout, batch settlement) and built real-time features using **WebSockets**.

Implemented **CloudFront versioning strategies** for instant content delivery and mentored junior team members.

Collaborated with product teams to translate business requirements into robust technical specifications.

TeachCreatix

Lahore, Pakistan

Associate Software Engineer

Jan 2021 – July 2021

Developed full-stack features using **React** and **Ruby on Rails**, contributing to RESTful API integrations and webhook implementations in a production SaaS environment.

Assisted in configuring Nginx servers on AWS to support production deployments.

TECHNICAL PROJECTS & ARCHITECTURE

AI & Media Engineering

EvyAI | Python, FastAPI, RAG, LangChain, Pinecone, Firebase

Architected a cross-platform RAG system serving a web app and Chrome extension with unified Firebase SSO.

Engineered a contextual intelligence engine using Vector DBs to generate persona-specific content with sub-second latency.

Scaled to thousands of active users, handling high-volume concurrent requests via an event-driven API.

Elftapes | Next.js, Node.js, FFmpeg, AWS S3, OpenAI

Built a server-side media synthesis pipeline using **FFmpeg** to bypass browser audio mixing limits, syncing AI audio with video.

Automated script ingestion via OCR (Tesseract) and optimized storage costs using S3 multipart uploads and lifecycle policies.

Draftr | Next.js, Rails, AI Agents, Drag & Drop, SEO

Architected a **no-code drag-and-drop builder** allowing users to launch sites with pre-built themes and automated subdomains.

Engineered an **autonomous AI blogging agent** using RAG to generate SEO-perfect articles and AI images.

Implemented a strategic **backlink exchange network** to boost domain authority for user-generated sites.

High-Scale SaaS & Legacy Modernization

Piqosity | Microservices, Neo4j, Postgres, Nginx, Elasticsearch

Orchestrated an incremental switchover (Strangler Fig) from Neo4j to PostgreSQL, ensuring **unified authentication** across systems.

Designed a dynamic assessment engine using JSONB to allow custom quiz structures without schema migrations.

Implemented a Repository Pattern to decouple analytics, reducing infrastructure costs by **40%**.

Upcoming Events | Rails, Redis, CloudFront, Docker

Scaled platform to **1M+ monthly users** using a custom **Ticket Inventory System** to prevent race conditions.

Architected a Payment Orchestration Layer (Stripe, PayPal, Apple Pay) with strict idempotency to prevent double-charging.

Optimized database indexing and payload sizes, reducing average database response time by over **50%**.

Fazier | FastAPI, Docker, AWS Lambda, PostgreSQL

Deployed a scalable microservices backend using **Docker** containers on AWS to ensure high availability.

Offloaded heavy background analytics tasks to **AWS Lambda** to maintain lightweight API performance.

Enterprise & Fintech Solutions

QuickCard | Rails, Stripe Connect, Redis, Payment Gateways

Developed the core **Payment Gateway logic** and settlement infrastructure to handle secure transactions.

Implemented Stripe Connect for complex split-payments and built a batch settlement engine for end-of-day reconciliation.

EDUCATION

Comsats University

Bachelor's in Software Engineering

Lahore, Pakistan

2016 – 2020