

# HASAN AFZAL

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## PROFESSIONAL SUMMARY

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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

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**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

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### 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.

### 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.

**Drafter** | *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

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**Comsats University**  
*Bachelor's in Software Engineering*

Lahore, Pakistan  
2016 – 2020