# Mohammad Ayoob Bhat

Full Stack AI Engineer — AI Software Engineer

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## Professional Summary

Full Stack AI Engineer with experience building production-ready AI applications, Retrieval-Augmented Generation (RAG) systems, scalable REST APIs, and cloud-native backend services using Python, FastAPI, Node.js, React, React Native, MongoDB, and AWS. Experienced in vector search, LLM integration, semantic retrieval, authentication systems, and end-to-end deployment. Passionate about designing AI-first software with scalable architecture and production-grade engineering practices.

## Technical Skills

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

**AI / ML**: Retrieval-Augmented Generation (RAG), Prompt Engineering, Sentence Transformers, FAISS, Gemini AI, Embeddings, MongoDB Atlas Vector Search, XGBoost, Random Forest, SMOTE, Scikit-learn

**Frameworks**: FastAPI, Node.js, Express.js, React, Next.js, React Native (Expo), Tailwind CSS

**Databases**: MongoDB, MySQL, Prisma, Supabase

**Cloud & Tools**: AWS EC2, Nginx, PM2, Git, GitHub, Vercel, REST APIs, JWT Authentication

## Professional Experience

**Zesconuts** June 2025 – Present

*Full Stack Developer* Onsite

- Designed and developed a production-grade e-commerce platform using Next.js, Node.js, MongoDB, and REST APIs, supporting secure checkout, order management, and customer workflows.
- Integrated multiple payment gateways including PhonePe, Razorpay, Cashfree, and Cash on Delivery through a unified payment architecture.
- Developed scalable admin modules for inventory management, product catalog, shipping, discounts, and order lifecycle management.
- Optimized backend API performance by improving database queries, reducing redundant requests, and implementing structured caching strategies.
- Collaborated with frontend and backend teams using Git-based workflows to deliver production-ready features and bug fixes.

**Paper Perfect Technologies** June 2024 – July 2024

*Software Engineer Intern* Remote

- Developed RESTful backend APIs using Node.js and Express for a drone commerce platform covering authentication, product catalog, and order management.
- Implemented modular API architecture following separation of concerns to improve maintainability and scalability.
- Worked closely with frontend developers to define API contracts, validate responses, and streamline application integration.
- Participated in debugging, testing, and feature development within an Agile software development environment.

## Selected Projects

**Memora AI** *React Native, Node.js, Express, MongoDB, Gemini AI, AWS*

- Built an AI-powered knowledge management application enabling users to organize, search, and chat with PDFs, websites, YouTube content, notes, and OCR-extracted documents.
- Implemented Retrieval-Augmented Generation (RAG) using Gemini Embeddings and MongoDB Atlas Vector Search to provide semantic search and context-aware AI responses.
- Designed scalable REST APIs for document ingestion, AI chat, collections, semantic search, OCR workflows, and user management.
- Implemented secure authentication using JWT, refresh tokens, email/password login, and Google Sign-In.
- Deployed the production backend on AWS EC2 using Nginx, PM2, HTTPS, and automated deployment workflows.

**GenAI Research Assistant** *Python, FastAPI, FAISS, Sentence Transformers*

- Developed a Retrieval-Augmented Generation backend capable of answering questions from uploaded PDF documents using semantic search.
- Implemented document parsing, intelligent chunking, embedding generation, vector indexing with FAISS, and similarity-based retrieval pipelines.
- Designed modular FastAPI services separating document ingestion, retrieval, embeddings, and API layers for maintainability.
- Built production-ready REST APIs documented with OpenAPI (Swagger) for seamless integration with frontend applications.

**Afsa AI SaaS** *Next.js, Prisma, MySQL, OpenAI API*

- Developed a multi-modal AI SaaS platform supporting AI-powered text, image, music, and video generation.
- Implemented authentication, subscription management, API usage tracking, and scalable backend architecture using Prisma and MySQL.
- Integrated AI APIs into a responsive Next.js application with secure server-side request handling.

**Credit Card Fraud Detection** *Python, Scikit-learn, XGBoost, SMOTE*

- Built supervised machine learning models to detect fraudulent financial transactions using Random Forest and XGBoost.
- Applied SMOTE to address severe class imbalance and evaluated models using Precision, Recall, F1-score, and ROC-AUC metrics.
- Performed feature engineering, preprocessing, and comparative model evaluation to improve fraud detection performance.

## Education

**Jamia Millia Islamia** Aug 2020 – May 2024
*Bachelor of Technology in Computer Engineering* New Delhi, India

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Database Management Systems, Computer Networks, Software Engineering, Artificial Intelligence.

## Technical Writing

**Attention Mechanism Explained & Why Deep Learning Needed It** Medium

- Explained Query, Key, and Value interactions in Transformer architectures and their advantages over recurrent neural networks.
- Discussed self-attention, contextual embeddings, and the foundations behind modern Large Language Models (LLMs).

**Prop Drilling in React** Medium

- Explained scalable state management patterns using Context API and component composition with practical React examples.

**Understanding useRef in React** Medium

- Demonstrated practical applications of useRef for DOM manipulation, mutable references, and performance optimization.

## Achievements

- Scored **99.98 Percentile in Physics** in JEE Main 2020.
- Built and deployed multiple production-grade Full Stack and AI applications using AWS, FastAPI, React, React Native, Node.js, and MongoDB.
- Published technical articles on Medium covering React internals, Transformer architecture, and modern frontend engineering.

## Additional Information

**Areas of Interest:** Generative AI, Retrieval-Augmented Generation (RAG), AI Agents, Backend Engineering, Distributed Systems, Full Stack Development

**Soft Skills:** Problem Solving, System Design, Communication, Team Collaboration, Ownership, Continuous Learning