Zeeyan Mehdi Syed

Machine Learning & AI Applications | Software Engineering

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Professional Summary

Software engineer focused on machine learning and AI applications. Most of my recent work is in Python, building end-to-end AI systems: a Retrieval Augmented Generation platform with an embedding pipeline, semantic search, and citation-backed answers grounded in source documents, and an interactive visualizer that shows how models such as logistic regression and neural networks learn. A full stack background helps me carry an ML feature from raw data through to a deployed application that people can actually use.

Core Competencies

- **AI/ML Engineering**: Retrieval Augmented Generation (RAG), Semantic Search, Vector Embeddings, Sentence Transformers, LLM Integration (Gemini), Prompt Engineering, ML Fundamentals
- **Programming & CS Fundamentals**: Python, TypeScript, JavaScript, OOP, Data Structures & Algorithms
- **Backend & APIs**: FastAPI, Node.js, Express.js, REST APIs, WebSockets (Socket.io), JWT Authentication
- **Databases & Vector Stores**: ChromaDB, FAISS, MongoDB, MySQL
- **Frontend**: React.js, Tailwind CSS
- **Tools & Platforms**: Git, GitHub, Docker, Postman, AWS

Key Projects

ML Algorithm Visualizer Apr 2025 – Dec 2025

- Built an interactive platform for exploring how core ML models learn, covering linear regression, logistic regression, and neural networks through live, parameter driven simulations.
- Rendered decision boundaries and training behavior in real time with TypeScript and HTML5 Canvas, updating instantly as users adjust inputs and hyperparameters.
- Designed modular visualization components that make experimentation simple, so changing a setting immediately shows its effect on the model's predictions and fit.
- **Technologies**: React.js, TypeScript, Tailwind CSS, HTML5 Canvas

AI Chat with Document Search (RAG Platform) June 2026 – July 2026

- Built and deployed a full stack RAG application where users upload PDFs and ask questions, with every answer grounded strictly in the document and returned with page level citations.
- Developed the Python document processing and embedding pipeline: page-aware chunking, 384-dimensional embeddings using all-MiniLM-L6-v2, and ChromaDB with cosine similarity search over the top 4 matching chunks.
- Wrote the FastAPI backend handling prompt orchestration and citation resolution, mapping each answer back to its exact source page, with automatic fallback between Gemini models for reliability.
- **Technologies**: FastAPI, React 19, Python, ChromaDB, Sentence-Transformers, Gemini API

Multi-Tenant Material Inventory API Dec 2025 – Jan 2026

- Designed a multi-tenant inventory API with strict row-level tenant isolation, RBAC, and plan-based business rules for FREE and PRO tiers.
- Implemented soft deletes and inventory transaction tracking with full TypeScript type safety.
- Built on a shared-database, shared-schema architecture with Zod-validated inputs, designed to scale without per-tenant overhead.
- **Technologies**: Node.js, TypeScript, Express.js, Prisma, PostgreSQL, Zod

Additional Projects: LLM Evaluation & Validation Pipeline (Python, FAISS) | Real-Time Google Sheets to MySQL Sync Engine (Next.js, WebSockets, Docker) | Full-Stack Social Media Platform (Node.js, MongoDB, Socket.io)

Professional Experience

Software Development Intern Dec 2024 – May 2025
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- Developed and maintained REST APIs with Node.js and Express.js for scalable web applications.
- Added real-time communication using Socket.io and JWT authentication to keep user sessions secure.
- Designed MongoDB schemas and optimized frequently used queries for faster data access.
- Worked closely with the frontend team to ship production ready features and keep the application stable.
- **Technologies**: Node.js, Express.js, MongoDB, Socket.io, JWT, AWS

Education

Bachelor of Engineering in Information Science 2022 – 2026
CMR Institute of Technology, Bangalore
Relevant Coursework: Machine Learning, Artificial Intelligence, Data Structures and Algorithms, Database Management Systems

Higher Secondary School (Science) 2022
International Indian School, Dammam, Saudi Arabia

Languages: English (Fluent), Hindi (Fluent), Arabic (Basic)