

MANTHAN H PAREKH

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CAREER SUMMARY

Computer Engineering undergraduate building hands-on experience in full-stack and AI development, software architecture, and AI/ML engineering. Proficient in designing production-grade REST APIs using Node.js, Express.js, Spring Boot, and FastAPI; focused on scalable system design, clean architecture, and engineering advanced RAG pipelines to ship intelligent capabilities into real-world applications.

SKILLS AND STRENGTHS

- **Languages:** C, C++, Java, Python, JavaScript, C#, PHP
- **Frontend:** React.js, Next.js, HTML, CSS, Tailwind CSS, Shadcn/ui
- **Backend & Frameworks:** Node.js, Express.js, Spring Boot, FastAPI, .NET Core 8, Django - REST APIs, WebSockets (STOMP)
- **AI / ML & NLP:** scikit-learn, NumPy, Pandas, NLTK, TF-IDF, LangChain, RAG Pipelines, FAISS Vector search, LLaMA, Groq/Gemini LLM APIs
- **Databases:** MySQL, PostgreSQL, MongoDB, Redis(Pub/Sub, Caching, Queue)
- **Cloud, DevOps & Tools:** AWS(In Progress), Vercel, Render, Docker, GitHub Actions (CI/CD), Git & Github, Google Colab, Postman, VS Code, IntelliJ IDEA, Github Copilot

PROJECTS

SourceNode - AI-Powered Unified Developer Workspace

[\[GitHub - Atlas\]](#) [\[GitHub - Apollo-Sync\]](#)

FastAPI / Python, LangChain, FAISS, Redis, Celery, PostgreSQL, Docker | Team of 4 (My Contributions focus on Core Backend & AI)

- **Developed** an **AI-powered RAG chatbot** (LangChain, **FAISS Vector Search**, local **LLaMA** model) with chunked document ingestion and semantic retrieval; built an **ML task classifier** (scikit-learn, NumPy) with Redis-cached autocomplete delivering near real-time suggestions.
- Architected **SourceSync** (GitHub App) as a **FastAPI, Celery, Redis** async webhook pipeline ingesting push, PR, issue, and workflow events with **HMAC-SHA256** verification, idempotent deduplication, per-installation **rate limiting** (sliding-window), and multi-tenant org isolation.
- Designed **PostgreSQL** event store (SQLAlchemy, Alembic) with paginated feed APIs and stale-installation cleanup; containerized all services using **Docker Compose** with **GitHub Actions CI/CD**.

JobCortex - AI-Powered Full-Stack Job Portal

[\[GitHub\]](#)

Node.js, Express.js, FastAPI, MongoDB, spaCy, Groq LLM

- Architected a **3-service system** (React/Vite, **Node.js + Express.js** core API, **FastAPI** analysis microservice) with **HMAC** inter-service auth; **implemented** multi-method authentication - JWT + HttpOnly cookies, SMTP OTP, **OAuth 2.0** (Google & GitHub) - with **RBAC** enforcing candidate-recruiter boundaries.
- Built a **resume analysis pipeline** (spaCy entity extraction, **Sentence Transformers** + RapidFuzz for JD semantic scoring, **Groq LLM** for skill-gap feedback) exporting ATS compatibility reports as **Playwright-generated PDFs**.
- **Developed** an AI shortlisting engine that ranks applicants by combining skill and resume-fit scores, protected by email-verification middleware for secure recruitment operations.
- Integrated **Cloudinary** (Multer) for multi-format resume storage with **MongoDB** analysis caching to eliminate redundant LLM calls and scheduled a daily background job to purge orphaned applications.

CodeCollab - Real-Time Collaborative Workspace

[\[GitHub\]](#)

Java 21, Spring Boot 3, WebSockets (STOMP), Docker, Redis Pub/Sub, PostgreSQL

- **Engineered** a high-concurrency collaborative workspace leveraging **Spring WebSockets (STOMP)** and client-side **CRDTs (Yjs)** to stream base64-encoded delta changes, ensuring conflict-free code syncing and text stability across multiple users.
- **Architected** an event-driven presence tracking engine utilizing a decentralized **Redis Pub/Sub** cluster; implemented custom WebSocket **ChannelInterceptor** lifecycle hooks to capture connection states and broadcast real-time user cursor offsets.
- **Developed** an isolated code execution engine using the **Docker Java SDK** to spin up dynamic, resource-restricted micro-containers that securely compile and pipe inputs for multiple languages under strict time-boundary limits.
- **Hardened** workspace boundaries by enforcing stateless **JWT filters** alongside custom **JPQL multi-tenant isolation joins** to completely eliminate cross-tenant data leaks and unauthorized session hijacking across collaborator dashboards.

WORK HISTORY

TechnoComet Solutions <i>AI & ML Trainee</i>	Rajkot, Gujarat 2 Months
• Evaluated and benchmarked 10+ predictive ML models (including Random Forest, SVM, and XGBoost) using grid-search hyperparameter optimization; achieved up to 94% classification precision while uncovering architectural patterns during exploratory data analysis (EDA). • Architected and deployed NLP pipelines (NLTK, spaCy) incorporating custom tokenizers and TF-IDF vectors; engineered a voice-driven recommendation module via cosine text-similarity matrices that dropped query latency by 18% across sample records.	

EDUCATION

Dharmsinh Desai University <i>B.Tech. in Computer Engineering</i> Current CPI: 8.62 / 10.0	Nadiad, Gujarat, India 2023 – 2027
Shree K.G. Dholakiya School <i>12th Board (Science)</i> PR: 96.95 PR Overall (99.02 PR in Science)	Rajkot, Gujarat, India 2023
Shree K.G. Dholakiya School <i>10th Board</i> Marks: 94% (99.27 PR)	Rajkot, Gujarat, India 2021

ACHIEVEMENTS & CODING PROFILES

Hackathons & Competitions: Participated in DUHacks 4.0 and 5.0 national-level 36-hour hackathons organized by Google Developer Student Clubs, DDU.	
Competitive Programming:	
• LeetCode: Solved 500+ algorithmic challenges across Data Structures, Algorithms, and MySQL (Manthan__Parekh___7) • Codeforces: Highest Rating: 1129 - Newbie (manthan_parekh_7).	