

Chaitanya Abhade

chaitanyaabhade426@gmail.com | +91-8446293227 | github.com | linkedin.com | Pune, India

Backend & GenAI Engineer — shipping agentic systems and scalable infra that actually slap.

SKILLS

- **Languages:** Python, TypeScript, JavaScript, Java (*DSA — In Progress*)
- **AI / GenAI:** LLMs, RAG, Hybrid GraphRAG, AI Agents, LangChain, Transformers, Vector Databases, Prompt Engineering, Fine-tuning (*Basics*)
- **AI / ML:** Supervised & Unsupervised Learning, Deep Learning, NLP, Scikit-learn, MLflow, MLOps Pipelines
- **Backend & Infra:** Node.js, Express.js, FastAPI, REST APIs, Redis, BullMQ, Docker, Nginx, CI/CD, AWS EC2, AWS S3
- **Databases & ORM:** PostgreSQL (*Drizzle*), MongoDB (*Mongoose*), Pinecone (*Vector DB*)
- **Frontend:** React.js, Next.js, TypeScript, Tailwind CSS, Zustand, Framer Motion, Socket.io

EXPERIENCE

- **Freelance Full-Stack & AI Developer** Pune, India
 - *Self-Employed* 2024 – Present
 - Built a full-stack dairy management platform using **Next.js**, **PostgreSQL**, and **Drizzle ORM** covering end-to-end operations — milk collection, inventory, supplier management, production workflows, and sales — replacing manual processes with a unified system.
 - Engineered automated **weekly/monthly report generation** with custom branding; integrated a **Chat-to-Database** feature via **Vercel AI SDK** enabling natural-language queries on live business data using **LLM-to-SQL** translation.

PROJECTS

- **SaarthiAI** [GitHub] In Progress
 - Architected a distributed async ingestion pipeline using **Redis + BullMQ** with multi-stage job processing (extraction → OCR via **Tesseract** → vectorization → graph synthesis); streamed progress to React via **Socket.io**, keeping the **Express API** non-blocking under concurrent uploads.
 - Designed a **Hybrid GraphRAG** system combining **Pinecone** ANN vector search with a **PostgreSQL** relational knowledge graph for multi-hop reasoning; applied **BGE local reranking** as a second-stage re-scoring — improving accuracy on complex queries over standard single-stage RAG.
 - Orchestrated a multi-LLM agentic layer with recursive tool-chaining across **Gemini 2.0 Flash**, **Groq (Llama 3.3)**, and **Ollama**; rendered structured outputs as live SVG diagrams, **Mermaid.js** maps, and **Recharts** dashboards in a real-time artifact workspace on **Next.js + TypeScript**.
- **CodeOrbital — AI Coding Platform** [GitHub] [Live] 12/24 – 02/25
 - Replaced REST polling with **Convex** edge-reactive database for real-time sync of code execution state, snippet interactions, and analytics — eliminating stale-read latency across **React 19** concurrent renders.
 - Engineered a context-aware AI tutoring engine on **Gemini Flash 2.0** with role-specialized system prompts per language stack; performed AST-level analysis on HTML/CSS/JS to detect reflow triggers, suggest ARIA fixes, and emit optimized code.
 - Integrated **Monaco Editor + Sandpack** for live multi-language browser execution; applied dynamic imports and selective hydration to reduce initial LCP — platform reached **259+ executions and 45+ student sign-ups**.
- **Setu.js — Lightweight HTTP Client Library** [GitHub] [Docs] 05/25 – 07/25
 - Built a universal HTTP client with a **Hybrid JS/C++ architecture**; implemented **N-API native add-ons** to offload URL encoding, query string construction, and header merging to C++ — reducing V8 heap allocations vs. pure-JS implementations.
 - Architected an environment-aware **Smart Adapter Pattern** binding **undici** for Node and native **fetch** for Browser; engineered a transparent JS fallback ensuring 100% uptime when native builds are unavailable.
 - Shipped dual **ESM/CJS** distribution with tree-shaking; validated performance against **Axios** and **Got** under high-frequency loads — achieved **750+ npm downloads** post-launch.
- **PhishGuard — Network Security ML** [GitHub] 10/25 – 11/25
 - Built a production **MLOps pipeline** using **FastAPI + MongoDB** with discrete stages (ingestion → schema validation → EDA → feature engineering → training → evaluation); tracked all experiments and artifacts with **MLflow** for full reproducibility.
 - Engineered a live feature extraction engine deriving **30+ behavioral and network-layer signals** per URL — WHOIS age, DNS anomalies, SSL validity, DOM heuristics (iframe depth, SFH targets, redirect loops) — trained on **11,000+ labeled URLs**.
 - Deployed via **FastAPI** REST API and a **Chrome Extension** for real-time scanning; supports batch CSV inference with custom exception-handling ensuring zero-crash processing under malformed inputs.

EDUCATION & ACHIEVEMENTS

- **Savitribai Phule Pune University** Pune, India
 - *BE – Computer Engineering* — CGPA: **8.9** 2024 – 2027
- **Top 7 Finalist, Magnitude Hackathon 2025** — Built a smart agricultural management solution out of hundreds of competing teams.