

GURPREET SINGH SANDHU

Computer Engineering Student | Full-Stack & AI/ML Engineer

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EDUCATION

Thadomal Shahani Engineering College (TSEC), University of Mumbai

Bachelor of Engineering in Computer Engineering

Cumulative GPA: 9.38 / 10.00

Mumbai, India

Expected 2028

Semesters I–IV

- Semester GPA:** Sem IV 9.87 | Sem III 9.81 | Sem II 8.86 | Sem I 8.95. **Coursework (Grade O):** Data Structures, Analysis of Algorithms, Operating Systems, DBMS, Discrete Structures & Graph Theory.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript (ES6+), SQL, C, C++, Java, HTML5, CSS3

Frontend: React, Next.js, React Three Fiber, Three.js, Tailwind CSS, Zustand, Framer Motion, MapLibre GL, ECharts, Vite

Backend & Databases: FastAPI, Node.js, Express.js, REST APIs, WebSockets, Pydantic, SQLAlchemy, Prisma ORM, PostgreSQL, SQLite, Redis

AI / ML & Data: Data Analysis, Data Cleaning, Data Visualization, Tableau, Spreadsheets, Large Language Models (LLMs), RAG, LangGraph, Multi-Agent Systems, Model Context Protocol (MCP), LoRA / PEFT Fine-Tuning, Unsloth, Function Calling, Vector Embeddings (ChromaDB, Sentence-Transformers), NLP, Hybrid Search (BM25), Ollama

Testing, DevOps & Tools: Docker, Git, GitHub, GitHub Actions (CI/CD), Pytest, Vitest, Playwright, Linux, Postman, Vercel

EXPERIENCE

Data Analytics Intern, InAmigos Foundation (Remote)

Sep 8 – Sep 22, 2026

- Researched 10 leading Indian NGOs across 5 sectors and documented their operating models, flagship programs, geographic reach and data-collection methods in a structured research report.
- Analyzed how AI and predictive analytics can improve fundraising, volunteer retention and education equity; authored a report proposing 5 AI interventions for NGO outreach, fundraising and impact verification, and compiled a directory of 18 student fellowships and volunteer programs.

PROJECTS

BlockPilot — Railway Maintenance & Possession Planning Platform

Smart India Hackathon 2026 (PS 26027)

Next.js, React, TypeScript, Three.js, MapLibre GL, ECharts, FastAPI, SQLAlchemy, PostgreSQL, Redis, Docker

Team project, private repository

- Led frontend development (128 commits, top contributor) of a platform that plans track-maintenance windows across Civil, Electrical, Signalling & Telecom and Mechanical departments of Indian Railways.
- Built a Three.js digital twin of rail corridors, a MapLibre GL track explorer, a 24-hour Gantt planner and ECharts risk analytics, backed by a multi-agent planning pipeline with SHAP-based explanations and a human safety-review queue.
- Cut backend latency by batching explanation queries, using async cache I/O and fetching risk data concurrently.

CivicWeave — Municipal Bureaucracy Path Visualizer

[\[GitHub\]](#) | [\[Live Demo\]](#)

Next.js, React, TypeScript, React Three Fiber, React Flow, Zustand, Zod, Prisma, PostgreSQL, Vitest, Playwright

Internal Hackathon 2026 (PSSW 02)

- Built a web app that turns a plain-language civic task (e.g., “register a cloud kitchen in Bandra”) into an interactive roadmap of steps, offices, forms, fees and timelines, computing order and parallel layers from a dependency graph.
- Implemented a 3D view (React Three Fiber) with an accessible 2D flowchart fallback (React Flow), Zod-validated graph contracts, persisted progress tracking, and an admin dashboard that re-validates the full graph on every save; each step links to its official government source.
- Set up GitHub Actions CI (lint, type-check, Vitest, seed-data validation, build) and deployed on Vercel.

PRGI TitleGuard — Press Title Verification Engine

[\[GitHub\]](#) | [\[Live Demo\]](#)

Python, FastAPI, Indic NLP, Hybrid Search (BM25, Trigram, Vector), TypeScript

Smart India Hackathon 2026 (PSS06)

- Built a verification engine that checks proposed publication titles against **82,713+ registered titles in under 2 seconds**, replacing a 25–30 day manual review for the Press Registrar General of India (PRGI).
- Designed a 5-stage hybrid retrieval pipeline (trigram, BM25, Indic phonetic matching, vector similarity) with evidence-traceable matches.
- Encoded 36 statutory compliance rules into a deterministic rule engine that generates automated justification reports.

RepoGuardian — Agentic GitHub Issue Triage Platform

[\[GitHub\]](#)

Python, FastAPI, MCP, Gemini Function Calling, ChromaDB, Sentence-Transformers, SQLite, Docker

Codeissance '26, 2nd Place

- Built an autonomous tool-calling loop over 6 diagnostic tools (vector RAG similarity search, sentiment, security scans) exposed through a **Model Context Protocol (MCP)** JSON-RPC server, with a 16-model quota failover cascade to stay available through API rate limits.
- Added idempotent task queues (SHA-256 fingerprinting) and local *all-MiniLM-L6-v2* embeddings, detecting duplicate crash reports at **90.7% cosine similarity**.

Lura-Rent — AI Rental Contract Auditor

[\[GitHub\]](#)

Python, LoRA / PEFT, Unsloth, Llama-3.2-3B, GGUF Quantization, Ollama, Streamlit

- Fine-tuned **Llama-3.2-3B** with **LoRA / PEFT** (rank 16, alpha 16) via Unsloth and exported 4-bit **GGUF (Q4_K_M)** weights for offline inference with Ollama; the Streamlit app flags high-risk lease clauses and cites the Maharashtra Rent Control Act, 1999.

Additional projects: **OrbitDesk** ([GitHub](#)) — local-first support agent network in LangGraph with Qwen2.5-0.5B and sentence-transformer retrieval, 0.60s response latency, Pytest suite. **PDF Page Studio** ([Live](#)) — client-side tool to reorder, number and merge images and PDFs, with no uploads.

ACHIEVEMENTS & CERTIFICATIONS

- Hackathons:** 2nd Place, Codeissance 2026 (24-hour, AI/ML track); TSEC institute nominee for Smart India Hackathon 2026 (college-round winner); RUBIX'26 (Team Diamonds, interactive 3D platform in React Three Fiber).
- Certifications:** Google Data Analytics Professional Certificate, Google/Coursera, Sep 2026 (credly.com/badges/128a79e5-e084-4bec-84ad-297feec9aea8); AI & Machine Learning Comprehensive Guide (Udemy).