

EDUCATION

Thapar Institute of Engineering and Technology
B. Tech. in Computer Science and Engineering

CGPA: 9.47/10

Patiala, India
Aug 2024 – Jun 2028

EXPERIENCE

Software Development Intern — CampusPro Technologies Pvt. Ltd.

Jun 2026 – Jul 2026

Education - sector ERP & Mobile App Platform

Gurugram, Haryana

- Built frontend enhancements for an Employee Attendance module serving 300+ employees, using HTML and CSS.
- Supported HRMS integration and database implementation, including testing and validation of attendance workflows.
- Assisted with deployment activities and technical documentation, collaborating with the engineering team.

TECHNICAL SKILLS

Languages: Python, C/C++, TypeScript, SQL, JavaScript, HTML, CSS

Frontend: React, Vite, Next.js, React Router

Backend: FastAPI, REST APIs, SQLAlchemy, Alembic, Pydantic, JWT Authentication

Systems: C++17, CMake, std::thread, std::mutex, std::condition_variable

Databases & Tools: PostgreSQL, MySQL, Redis, Linux, Docker, Git, GitHub, Render, Vercel, Neon, Upstash

Testing: pytest, CTest, ThreadSanitizer, Locust, Playwright

Relevant Courses: Data Structures & Algorithms, Design and Analysis of Algorithms, Object-Oriented Programming, Operating Systems, Computer Networks, Probability and Statistics, Database Management Systems

Core Concepts: System Design, Authentication & Authorization, Concurrency, Database Design, Caching, Rate Limiting

PROJECTS

VeriGate – Software Verification Platform

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

React 19 · Vite · FastAPI · PostgreSQL · SQLAlchemy · Alembic · Pydantic · Playwright · Pytest

- Built and deployed a full-stack verification platform with a React 19/Vite dashboard and a FastAPI/PostgreSQL backend: 70+ REST endpoints, JWT auth and role-based access control, backed by **119 pytest tests** (80% coverage).
- Integrated GitHub PR verification (HMAC-signed webhooks, commit status checks) and Playwright browser verification; added LLM failure root-cause analysis and PDF/JSON audit reports.
- Load-tested locally with Locust: **0% errors across 1,500+ requests, ~100 ms P95**.

Orchestrix – AI Gateway & Workflow Orchestration Platform

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

FastAPI · Next.js · PostgreSQL · SQLAlchemy · HTTPX · Docker · Groq · Gemini

- Built and deployed a full-stack AI gateway (FastAPI backend, Next.js dashboard) with authenticated virtual keys, provider abstraction, **Groq→Gemini** fallback, bounded repair, structured output validation and execution tracing.
- Designed atomic budget reservation using PostgreSQL conditional updates, guaranteeing zero oversubscription; verified with 10 simultaneous requests on a one-request budget (1 admitted, 9 rejected).
- Benchmarked with Locust against live LLM providers: **1.92 s average latency (P95: 2.9 s) with 0% request failures**.

RateShield – API Gateway with Rate Limiting & Authentication

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

FastAPI · Redis · PostgreSQL · SQLAlchemy · Docker · JWT · React · Render · Vercel

- Built and deployed a full-stack API gateway (React dashboard, FastAPI backend, Neon PostgreSQL, Upstash Redis); load-tested with Locust at **~95 req/s, 204 ms average latency (P95: 460 ms) and 0% failures across 11K+ requests**.
- Implemented Lua-scripted Redis sliding-window rate limiting with atomic enforcement and per-user quotas.
- Secured the API with JWT auth and hashed passwords/API keys; built a React dashboard for API key management, request analytics, subscription plans and system health monitoring.

TaskForge – Concurrent Task Scheduler

[GitHub](#)

C++17 · CMake · std::thread · std::mutex · std::condition_variable · CTest · ThreadSanitizer

- Built a multithreaded task scheduler with a bounded queue, fixed-size thread pool, backpressure and graceful drain shutdown.
- Implemented configurable retry policies, timeout detection and a dead-letter queue for failed jobs.
- Benchmarked worker scaling with near-linear I/O throughput gains (**63→481 jobs/s, 1–8 workers; mean ± stddev over 5 runs**); validated thread-safety with ThreadSanitizer and CTest.

ACHIEVEMENTS

- Reliance Foundation Scholar 2024 — national merit scholarship awarded to 5,000 students across India.
- Thapar Institute Merit Scholarship — awarded to top 10% of cohort for Year 1 academic performance.
- School Topper, Class XII (CBSE) — 96.8%.