

TIYA AGARWAL

+91 97603 54406 | [Email](#) | [LinkedIn](#) | [GitHub](#) | [LeetCode](#)

EDUCATION

Vellore Institute of Technology

B.Tech, Computer Science & Technology | CGPA: 8.62 / 10

Vellore, Tamil Nadu

2023 – 2027

EXPERIENCE

Software Engineering Intern

DeepFold Technologies

May 2026 – Jul 2026

Gurugram, Haryana

- Validated REST API responses for enterprise web-application modules, identifying response-schema mismatches and edge-case failures during QA testing.
- Fixed frontend and backend defects in JavaScript and SQL, writing clean, maintainable code to resolve UI rendering issues and incorrect query outputs across multiple features.
- Documented 20+ defects across QA cycles, tracking resolution status and coordinating fixes with developers using Git and Agile sprint practices.

Software & IT Solutions Intern

Elegant Soft Solutions & Services

May 2025 – Jul 2025

Agra

- Wrote SQL queries to validate migrated business records, identifying and resolving data inconsistencies across inventory and accounting modules in TallyPrime.
- Tested ERP inventory and accounting workflows end-to-end, logging defects and verifying post-fix data integrity across system modules.
- Engineered Excel-based reporting templates to track migration progress and flag discrepancy patterns during ERP go-live activities.

PROJECTS

FedCB-PedBrain | *Python, PyTorch, Federated Learning, Medical Imaging*

- Built a class-imbalance-aware federated learning framework for joint classification and segmentation of pediatric brain tumors across 19 simulated hospitals, extending a Nature Communications federated-learning platform.
- Designed a Class-Balance-aware Weighted Aggregation (CBWA) rule and class-balanced training loss to address a class-imbalance failure mode the base paper identifies but does not solve.
- On a synthetic proof-of-concept reproducing the base paper's heterogeneity pattern, improved worst-class F1 from 0.194 to 0.625 and macro-F1 from 0.618 to 0.709.

RAGLean | *Python, FastAPI, FAISS, Streamlit, scikit-learn*

- Built RAGLean, a cost/latency optimization layer for production RAG pipelines — semantic caching, complexity-based model routing, and context compression — with an evaluation harness validating answer quality.
- Reduced inference cost by 91% and latency by 71% across a 27-query benchmark suite with no measurable quality loss (F1 within noise of baseline), verified via a reproducible benchmark script.
- Exposed an OpenAI-compatible FastAPI proxy with per-tenant budget tracking and a Streamlit observability dashboard; 20-test suite covering every module.

NoteVault — Black-Box VAPT Engagement | *Node.js, Express, Burp Suite, Postman, CVSS 3.1*

- Conducted a full black-box penetration test against a self-built vulnerable Node.js/Express application, identifying 10 findings — including SQL injection, stored XSS, IDOR, plaintext password storage, and a hardcoded JWT secret exposed via an unauthenticated debug endpoint — with CVSS 3.1 scoring and reproducible PoCs.
- Remediated and retested against a parallel fixed build, closing 100% of critical/high findings (~73% reduction in aggregate CVSS risk) and scripting automated retest verification that replays every critical/high PoC to assert closure.

RootPilot — AIOps Observability Platform | *Java 21, Spring Boot, PostgreSQL, Redis, RabbitMQ*

- Built a Spring Boot service that ingests live telemetry over RabbitMQ and runs Z-score anomaly detection over a rolling 30-point baseline window, persisting incidents to PostgreSQL with a Redis cache (automatic database-only fallback on cache failure).
- Integrated Gemini as an SRE copilot for natural-language root-cause analysis and built the React/TypeScript dashboard including a React Flow service-topology view; deployed on Railway (backend) and Vercel (frontend).

MockMate — AI Mock-Interview Platform | *FastAPI, React, MongoDB, Gemini, Vertex AI*

- Built an AI mock interview platform where candidates record video answers to Gemini-generated, role-specific questions; implemented the video-analysis pipeline that uploads recordings to S3 and passes them to Vertex AI Gemini for transcription and scoring.
- Returned structured feedback (0–100 per-question and overall content scores, 0–10 communication score) with body-language notes to a results dashboard, over a JWT-authenticated FastAPI backend with MongoDB-backed sessions.

RepGuard — Wearable Exercise-Form Classifier | *ESP32, MPU6050, C/C++, scikit-learn, Flask*

- Built a forearm-worn ESP32 device that classifies gym reps as correct or incorrect form in real time; trained a Random Forest on 12 statistical features from 50Hz gyroscope data per rep and exported it directly to C if/else logic for on-device inference with no ML runtime.
- Added single-LED blink-code feedback (1 = correct, 2 = incorrect) designed to be usable by colorblind users, a debounce state machine for rep segmentation, and a live Flask/TCP dashboard.

TECHNICAL SKILLS

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

Frameworks & Libraries: React.js, Node.js, Express.js, Spring Boot, FastAPI, Flask, TensorFlow, Scikit-learn, Pandas

AI/ML & LLM: Machine Learning, Generative AI, LLMs, Retrieval-Augmented Generation (RAG), Prompt Engineering, Vector Embeddings, NLP, Model Evaluation, TinyML

Security: VAPT, Burp Suite, OWASP Top 10, SQL Injection, XSS, IDOR, CVSS 3.1 Scoring, JWT Security

Databases & Infra: MongoDB, FAISS, Redis, RabbitMQ, SQL, Docker, AWS, Google Vertex AI, Gemini API

Tools & Concepts: Git, REST APIs, System Design, SDLC, Agile, Cybersecurity, IoT

Coursework: Data Structures & Algorithms, DBMS, Operating Systems, Computer Networks, OOP, System Design

CERTIFICATIONS

AWS Certified Cloud Practitioner (CLF-C02) — Amazon Web Services, 2026

Machine Learning — SmartBridge × Google for Developers, 2025

Journey to Cloud: Envisioning Your Solution — IBM SkillsBuild, 2025 | **Getting Started with AI** — IBM SkillsBuild, 2025

ACHIEVEMENTS & LEADERSHIP

Solved **200+ DSA problems** on LeetCode across Easy, Medium, and Hard difficulty.

Competed in **4+ hackathons** and technical challenges, rapidly prototyping ML and web solutions end-to-end under time constraints.

Core Member, IEEE Computer Society — led AI/ML research discussions and peer-learning sessions for 50+ members.

Public Relations Head, VIT Dance Team — led event outreach, branding, and publicity campaigns.