

ADITYA RAJ

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Education

National Institute of Engineering

Bachelor of Engineering (BE) in Information Science and Engineering
CGPA: 8.4

2023 – 2027

Mysore, Karnataka

Projects

GradeBuddy — Full-Stack Academic Analytics Platform | *Next.js, React 19, TypeScript, Puppeteer, Cheerio, Docker* | [Github](#) | [Live](#)

- Built a full-stack web platform that automates CIE mark retrieval from a university portal, computes required SEE scores for target grades, and simulates SGPA outcomes for 500+ students.
- Engineered a headless browser automation pipeline using Puppeteer with stealth plugins to bypass reCAPTCHA v3 bot detection, implementing a hybrid scraping architecture that combines browser navigation for authentication with in-browser parallel fetch() calls for fast data extraction (~15s for 8 courses).
- Designed a production Docker deployment on Render.com with optimized Chromium flags for constrained container environments (512MB RAM).
- Implemented credit-weighted grade computation algorithms (CIE/SEE standardization, SGPA calculation) aligned with VTU evaluation policies.

RansomGuard.ai — ML-Powered Network Threat Classification System | *Python, FastAPI, XGBoost, Random Forest, JavaScript, Chart.js* | [Github](#)

- Architected a cybersecurity analytics platform using Clean Architecture (DDD) that classifies network traffic into 10 attack categories using the UNSW-NB15 dataset, with ransomware lifecycle phase mapping.
- Implemented 6 GoF design patterns (Strategy, Factory, Observer, Singleton, Facade, Template Method) to enable runtime model switching between Random Forest and XGBoost inference pipelines.
- Built a RESTful prediction API using FastAPI with a real-time analytics dashboard showing live classification metrics, model usage, and request statistics.

BuildFolio — Client-Side Portfolio Website Generator | *JavaScript, HTML, CSS* | [Github](#) | [Live](#)

- Developed a zero-backend portfolio generator that lets users build, preview in real-time, and export complete portfolio websites as deployable ZIP files — entirely in the browser.
- Implemented live preview rendering, multiple themes with dark mode support, dynamic section management, and browser-based persistence using LocalStorage for auto-save/restore.

NOVA — Encrypted Real-Time Chat System | *Python, Socket Programming, RSA Encryption, CustomTkinter* | [Github](#)

- Built a multi-client chat application with RSA-based end-to-end encryption and dynamic public key exchange over a custom client-server protocol.
- Designed concurrent networking using Python threading for non-blocking multi-user communication with real-time UI updates.

Technical Skills

Languages: JavaScript, TypeScript, Python, Java, C, SQL

Frontend: React, Next.js, HTML/CSS, Framer Motion

Backend: FastAPI, Django, Node.js, REST APIs

Tools & DevOps: Git, Docker, Linux, Puppeteer, Cheerio, VS Code, Figma

Data & ML: XGBoost, Random Forest, Feature Engineering, MySQL

Core CS: Data Structures & Algorithms, OOP, DBMS, Operating Systems, Computer Networks

Achievements

- Secured a merit-based branch change from Mechanical Engineering to Information Science Engineering after ranking among the top students in the Mechanical Engineering cohort in first year of BE (9.5 CGPA).
- Top 10 Finalist, ComedKares Ideathon, NIE (2024).
- Head Boy, St. Xavier's High School (2019–20).