NEELESH KUMAR TRIPATHI

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EDUCATION

The National Institute of Engineering — **Mysore, Karnataka**
Bachelor of Engineering in Information Science — **CGPA: 8.60/10** — *Sep. 2023 – May 2027*

Little Flower School — **Gorakhpur, Uttar Pradesh**
Senior Secondary Education (Class XII) — **Percentage: 91%** — *July 2022*

PROJECTS

Crackd – AI Powered Placement Assistance Platform (Demo) — **May 2026**
React.js, Node.js, Express.js, MongoDB, Redis, JWT, Gemini API, RAG, Jest, GitHub Actions — *Repository Link*

- Built a full-stack **MERN** placement platform (**Node.js**, **Express.js**, **MongoDB**) where students read company-wise interview experiences, get personalized prep plans, and track their roadmap progress.
- Integrated the **Gemini API** to generate personalized, role-specific study roadmaps with weekly plans and topic-wise checklists, tailored to each student's available preparation time, current strengths, and weak areas.
- Developed a **RAG**-based interview assistant that retrieves relevant interview experiences from MongoDB using **Gemini embeddings** and **cosine similarity** search, so every answer stays grounded in real student data.
- Designed secure **RESTful APIs** and **Mongoose** models with **JWT** auth, **bcrypt** hashing, and college-email validation.
- Added **Redis caching** for frequently read company data, with a MongoDB fallback if the cache goes down.
- Wrote **unit and integration tests** with **Jest** and **Supertest**, automated lint, build, and test runs on every push with **GitHub Actions CI/CD**, and deployed the React frontend on **Vercel** and the Express backend on **Render**.

LLM Cost & Latency Optimizer Gateway — **Ongoing**
Python, FastAPI, Sentence-Transformers, NumPy, SQLite, Pydantic, OpenAI SDK, Groq, Gemini — *Repository Link*

- Built a **Python**/**FastAPI** gateway that routes simple prompts to a cheap model tier and complex ones to a powerful tier, logging tokens, latency, and cost per request to **SQLite** behind a **/stats** endpoint for hit rate and savings.
- Designed a two-stage **semantic cache**: an exact-match lookup first, then **Sentence-Transformers** embeddings with **NumPy** cosine similarity ($\geq$0.85) to reuse answers for repeated and paraphrased prompts without extra LLM calls.
- Added guards so similar prompts with different numbers, negations, or opposite words (enable/disable) never share an answer; the cache is **thread-safe**, with **LRU eviction**, a **24-hour TTL**, and a time-sensitive bypass.
- Integrated **Groq**, **Gemini**, and **OpenRouter** via **OpenAI SDK**-compatible endpoints with ordered multi-provider fallback and 30-second timeouts, returning **HTTP 503** instead of a made-up answer when every model fails.

FinNIE – Campus Lost & Found Platform — **September 2024**
Flask, MySQL, Jinja2, HTML, CSS — *Repository Link*

- Developed a full-stack web app for students to report, browse, and manage lost and found items on campus.
- Built the **Flask** backend and **MySQL** data layer with **Jinja2** templates, averaging about **10 ms** per query.
- Added keyword search and category filters, and **API rate limiting** with **Flask-Limiter** to block spam and abuse.

TECHNICAL SKILLS

Languages: C, C++, Python, JavaScript, SQL
Backend: Node.js, Express.js, FastAPI, Flask, RESTful APIs, JWT Authentication, Pydantic, Mongoose
AI/LLM: Gemini API, Groq, OpenRouter, RAG, Embeddings, Semantic Caching, LLM Routing, Prompt Engineering
Databases & Caching: MongoDB, MySQL, SQLite, Redis
DevOps & Tools: Git, GitHub, GitHub Actions (CI/CD), Docker, Jest, Supertest, Postman, Render, Vercel
Core Concepts: Data Structures & Algorithms, OOP, DBMS, Operating Systems, Computer Networks, Agile/Scrum, SDLC

ACHIEVEMENTS

Problem Solving & Hackathons — **Codolio Profile**

- Solved **500+ Data Structures and Algorithms** problems on LeetCode, GeeksforGeeks, and other coding platforms.
- Ranked **4th among 100+ teams** at DevJams, VIT, building an AI Sign-to-Text and Text-to-Sign platform in 24 hours.

EXTRA-CURRICULARS & LEADERSHIP

The BYTE Club, NIE — **August 2024 – January 2026**
Management Core Member — *The National Institute of Engineering, Mysuru*

- Led the intercollegiate flagship tech event **HackForge 2025** as **Event Lead**, coordinating teams across the state.
- Organized **10+ workshops and coding events** for **200+ students**, from beginner DSA sessions to hands-on builds.
- Managed logistics, **sponsor outreach**, and event planning, keeping club activities running on schedule throughout.