

Aryan Gupta

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EDUCATION

Birla Institute of Technology, Mesra

B.Tech in Electronics and Communication Engineering

2023 – 2027

CGPA: 8.49/10

Angels High School, Hazaribagh, Class XII, CBSE

2022 | 88.67%

Angels High School, Hazaribagh, Class X, CBSE

2020 | 91.67%

TECHNICAL SKILLS

Languages: C++, Python, JavaScript, SQL

Backend & Full-Stack: Node.js, Express.js, FastAPI, React.js, REST APIs, JWT Authentication, SQLAlchemy, Mongoose

Databases: PostgreSQL, MySQL, MongoDB, Redis

AI & ML: Generative AI, Machine Learning, Deep Learning, Sentence Transformers, LLMs, RAG Pipelines, LangChain, Vector Search

Cloud & DevOps: AWS, Docker, GitHub Actions (CI/CD), PM2, Vercel, Render

Developer Tools: Git, GitHub, Linux, Postman

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

EXPERIENCE

QOE Technologies and Services

May 2026 – June 2026

Software Developer Intern

Remote

- Built full-stack features for **Soul Consciousness Lab** using **React.js**, **Node.js**, **Express.js**, and **MongoDB**, including **RESTful APIs** with request validation, structured error handling, and CRUD operations.
- Optimized performance** by removing redundant API calls, reducing unnecessary **React** re-renders, and adding lazy loading for faster loads.

PROJECTS

DocuMind – RAG Document Assistant | Python, FastAPI, PostgreSQL, Redis, FAISS, LangChain, React, Docker

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

- Built an end-to-end **RAG pipeline** over PDF, DOCX, and TXT files, using **SentenceTransformer** embeddings and a **FAISS** vector store for top-k semantic retrieval.
- Developed a modular **FastAPI** REST backend with **Pydantic**, **SQLAlchemy**, and **PostgreSQL** for document metadata, query history, and analytics; containerized with **Docker**.
- Implemented multi-turn **LLM Q&A** with session-aware prompts, **smart follow-up suggestions**, and real-time streaming to a **React** client; added **Redis** rate limiting and query caching (1-hour TTL), cutting latency from **2.5s to under 15ms**.

DPI Engine – Deep Packet Inspection System | C++, PCAP, Multithreading, TLS SNI, Flow Tracking

Group Project | [GitHub](#)

- Co-engineered a **multithreaded C++17** deep packet inspection (DPI) engine from scratch, with a custom **PCAP** reader and Ethernet/IPV4/TCP/UDP/ICMP parsers; thread-safe queues sustain **10,000+ packets/sec** on a single core.
- Co-built traffic classification that extracts **SNI** from TLS 1.2/1.3 Client Hello packets and decodes **HTTP Host** headers and **DNS** queries to map domains to applications.
- Co-implemented a bidirectional **five-tuple flow tracker** and a **rule engine** that blocks traffic by IP, wildcard domain, application, and port, emitting a filtered PCAP.

Tweetie – Social Media Platform | React.js, Node.js, Express.js, MongoDB, JWT, AWS S3

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

- Engineered a full-stack social media platform on the **MERN** stack with stateless **JWT** authentication in **HTTP-only cookies** to mitigate **XSS** token theft; deployed on **AWS EC2** (Ubuntu) with **PM2** for zero-downtime availability.
- Designed a modular **RESTful API** with **Express.js** and **Mongoose** schemas covering CRUD for posts, likes/comments, follow/unfollow, and real-time follower notifications; built a custom **time-decay content-ranking algorithm** to personalize the user feed.
- Achieved **O(1)** feed read latency with an asynchronous **node-cron background worker** that precomputes rankings; integrated **AWS S3** for scalable media storage and **TanStack React Query** caching to cut redundant network requests.

ACHIEVEMENTS

- Solved **750+ DSA problems** across [LeetCode](#), [Codeforces](#), and [CodeChef](#).
- Achieved **Knight** on [LeetCode](#) (Max Rating 1943, Top 3.5%), **Pupil** on [Codeforces](#) (1246), and **3-Star** rated on [CodeChef](#) (Max Rating 1639).
- Global Rank 285** in LeetCode Weekly Contest 502 and **Global Rank 1,488** in Biweekly Contest 184.
- Qualified for Round 2 of **Google The Big Code 2026** (Top 1,500).
- Top 3%** in JEE Main 2023 (1.2M+ candidates).
- Captain, BIT Mesra Football Team** (2025 – Present), demonstrating leadership and teamwork.