

Ansh Singh

Varanasi, UP | +91 8840916738 | snghansh07@gmail.com
<https://portfolio-ansh-singh.vercel.app> | <https://www.linkedin.com/in/anshsingh07>
<https://github.com/SinghAnsh07> | <https://codolio.com/profile/AnshSingh>

EDUCATION

Vellore Institute of Technology, Chennai

Aug 2023 – Jun 2027

B.Tech in Computer Science and Engineering

Chennai, TN

Relevant Coursework: Data Structures & Algorithms, Operating Systems, DBMS, Computer Networks, OOP, Software Engineering, Machine Learning, Data Science & Analytics, Cryptography & Network Security

EXPERIENCE

Centre for Smart Grid Technologies Research Intern | CSGT, VIT Chennai (Remote)

May 2026 – July 2026

- Developed a multi-class brain tumour classification machine learning pipeline for **3,000+** MRI scans using **ResNet50**, **DenseNet121**, and **EfficientNetB5** architectures.
- Conducted a 12-model ablation study comparing Squeeze-and-Excitation (SE), CBAM, and Hybrid attention mechanisms through test-driven evaluation cycles, achieving a peak accuracy of **95.00%** with the **DenseNet121 + SE-Attention** configuration.
- Integrated Explainable **AI (XAI)** using **Grad-CAM** visual saliency maps to audit model decision pathways, identifying **20+** edge-case failures and boosting clinical interpretability trust by **35%**.
- Co-authored a research paper** presenting the proposed framework, comprehensive ablation study, and explainability analysis, and submitted it to a **Q1/Q2 international journal** for peer review.

Power BI Intern | AICTE (Remote)

Feb 2026 – March 2026

- Built asynchronous **data transformation pipelines** using Power Query, improving data consistency and reducing preprocessing errors by **~30%**.
- Utilized **DAX functions** to create optimized calculated fields, improving report refresh performance by **~25%**.

PROJECTS

StudyNotion — EdTech SaaS Platform | MERN, Redux, Socket.IO, Razorpay

Live / GitHub

- Built a **full-stack Learning Management System (LMS)** featuring role-based dashboards (Student, Instructor, Admin), secure **JWT authentication** with Http Only cookies, **Redux Toolkit state management**, and scalable microservice-style course management workflows.
- Integrated Razorpay Payment Gateway with custom webhook automation for asynchronous payment verification, automatic course enrolment, invoice generation, and end-to-end course monetization.
- Optimized platform performance and analytics** by leveraging **Cloudinary CDN** for **40%** faster asset delivery and implementing Recharts-powered real-time dashboards to track student engagement, retention, and revenue metrics.

DairyDesk — Dairy Management SaaS Platform | Flutter, Node.js, PostgreSQL, Prisma, SQLite (Drift)

GitHub

- Built an **offline-first dairy management platform** using **Flutter** and **Drift (SQLite)**, enabling 60–100 daily transactions with zero internet dependency while maintaining an immutable ledger for milk collection, payments, and inventory records.
- Engineered a **robust synchronization** architecture with bidirectional **PostgreSQL** sync, last-write-wins conflict resolution, exponential backoff retry logic, and a **Dockerized Node.js/Express microservice backend** using **Prisma ORM** for scalable deployment.
- Implemented secure multi-strategy authentication** supporting Google Sign-In, Email OTP, and offline PIN login with **JWT** and **SHA-256** hashing, ensuring seamless online and offline access.

Courses & Certifications

- [Google Cybersecurity] — Google | [DevOps Fundamentals] — IBM | [DevOps, Agile & Design Thinking] — IBM
- [Structured Query Language] — CU Boulder | [JS Intermediate] — HackerRank

ACHIEVEMENTS

- Competitive Programming:** Solved 500+ problems (Leetcode, GFG, Code forces, Ninjas); **Max Rating 1700+ (Top 10% Globally)**.
- Contest Rank:** Secured Global Rank 944 in Leet Code Biweekly Contest 162 and 848 in Biweekly Contest 159.
- Community:** Finalist at Flutter Sprint Hackathon 2026 Google Developer Club; contributing to open-source web tools.

TECHNICAL SKILLS

- Languages:** C, C++, Python, Java, JavaScript (ES6+), TypeScript, SQL, Bash
- Backend:** Node.js, Express.js, RESTful APIs, Microservices, System Design (LLD/HLD), Prisma ORM, WebRTC, Socket.IO
- ML & Data:** LightGBM, NLTK, TF-IDF, MLflow, DVC
- Frontend:** React.js, Next.js, Redux Toolkit, Tailwind CSS, Material UI, React, HTML5/CSS3, React bits, Framer Motion
- Databases:** MongoDB, MySQL, PostgreSQL
- Cloud & AI Tools:** AWS (S3), Cloudinary, JWT, Hugging Face, Prompt Engineering, GitHub Copilot.
- Tools & DevOps:** Git/GitHub, Docker, Postman, Swagger, CI/CD, Linux
- Android Development:** Flutter, React Native, Android Studio, Firebase, SQLite
- UI/UX Design:** Figma, Prototyping, Responsive Design, User - Centred Design