

ADITYA KUMAR

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PROFESSIONAL SUMMARY

Full-stack Software Developer with a strong foundation in Data Structures, Algorithms, Object-Oriented Programming, and scalable distributed systems. Experienced in designing RESTful APIs, optimizing database performance, and building production-ready applications using React, Node.js, PostgreSQL, and Google Cloud/AWS. Passionate about backend architecture, asynchronous message queuing, and engineering real-time, end-to-end encrypted messaging systems.

EDUCATION

National Institute of Technology Jamshedpur

Jamshedpur, India

B.Tech in Electronics & Communication Engineering | CGPA: 8.26

2024 – 2028

Tarapore School

Jamshedpur, India

ISC (12th): 92.75% (2023) | ICSE (10th): 90.2% (2021)

WORK EXPERIENCE

Raynab Innovations

Remote

Software Development Intern

Jan 2026 – March 2026

- Architected a privacy-first vehicle lookup and alerting system using the **Twilio API** and **Firebase**, enabling users to anonymously notify owners of parking blockages via predefined **WhatsApp messages** triggered by license plate entry.
- Implemented an automated time-bound escalation workflow that triggers a masked, pre-recorded audio call via Twilio if messages remain unacknowledged, ensuring prompt resolution without exposing user phone numbers.

Society of Electronics & Communications Engineering (SECE)

NIT Jamshedpur

Web Developer

2025 – Present

- Enhanced the official society website through frontend optimization, improved UI/UX consistency, and structured Git-based version control with pull request workflows.
- Resolved production issues, improved performance, and deployed updates for large-scale technical workshops.

PROJECTS

MINI LAMBDA (SERVERLESS ENGINE) | *Go, Node.js, Kubernetes (K3s), KEDA, Docker SDK, GCP, Next.js*

- Architected a distributed serverless compute platform on a custom **GCP K3s Kubernetes** cluster, configuring **Traefik Ingress**, **Cloudflare DNS**, and **Cert-Manager** (Let's Encrypt) for automated, secure HTTPS routing.
- Engineered a **Go compute daemon** that dynamically provisions isolated, polyglot **Docker sandboxes** (Python, Node, C++) via host socket mounting, enforcing strict CPU/memory limits and execution timeouts.
- Implemented dual-layer autoscaling: utilized **KEDA** to monitor **Upstash Redis (BullMQ)** for event-driven, **scale-to-zero** worker provisioning, and **HPA** to horizontally scale the **Express.js API** gateway under CPU load.
- Designed a real-time telemetry pipeline using **Server-Sent Events (SSE)** to stream live container logs to a **Next.js/Vercel** frontend, and secured function code via **Google Cloud Storage** cryptographically signed URLs.

SHABD BLOGGING APP | *TypeScript, React, Node.js, PostgreSQL, Redis, BullMQ, Google Cloud, Docker, Socket.io*

- Engineered a containerized backend via **Docker**, deployed to **Google Cloud Run** with an automated CI/CD pipeline for serverless, zero-downtime scaling.
- Built an **End-to-End Encrypted (E2EE)** messaging engine using Static ECDH and AES-256-GCM, featuring secure in-memory media decryption and rendering.
- Integrated **Upstash Redis** and **BullMQ** for write-behind caching and asynchronous message queuing, completely decoupling real-time **Socket.io** traffic from the **PostgreSQL** database.
- Optimized server bandwidth by implementing direct, encrypted media uploads to **Google Cloud Storage** via presigned URLs with automated 24-hour lifecycle policies.

TECHNICAL SKILLS

Languages: C, C++, Java, JavaScript, TypeScript, Python (NumPy, Pandas), GoLang, SQL

Core CS: Data Structures & Algorithms, Object-Oriented Programming, DBMS, Operating Systems, Computer Networks

Frontend: React, Next.js, HTML5, CSS3, Tailwind CSS

Backend: Node.js, Express.js, Hono, REST APIs, WebSockets, Socket.io, Cryptography (E2EE)

Databases & Queues: PostgreSQL, MySQL, MongoDB, Prisma ORM, Upstash Redis, BullMQ

Cloud, DevOps & Tools: Docker, Kubernetes, AWS (S3, EC2), Google Cloud (GCP), CI/CD, Prometheus, Grafana, Git, Turborepo, Postman, Jupyter

ACHIEVEMENTS

- Scored **98.85 percentile** in **JEE Main** with an **AIR of 18,297** (Top 1.5% of candidates).
- Secured **2nd rank** in **CodeNexus** Competitive Programming Contest at NIT Jamshedpur.
- Achieved a peak **Codeforces rating of 1136** and **CodeChef 2-star** rating of 1455.
- Ranked **1st in school (ISC)**; received **Charles Babbage Award** for scoring 100/100 in Computer Science.