Divyansh Gupta

B.Tech
Computer Science and Engineering
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Education

•National Institute of Technology, Patna *2026*
B.Tech in Computer Science and Engineering CGPA: **9.31**

•Morning Star Children's Academy, CBSE *2022*
Senior Secondary Education Percentage: **94.8%**

•Morning Star Children's Academy, CBSE *2020*
Secondary Education Percentage: **94.6%**

Projects

• Zync Connect | Github | Link *March 2025*

Tools: ***NextJs, Express, AWS, GraphQL, Socket.IO, WebRTC, PostGres, Redis, TypeScript***

- Engineered a real-time **Video Calling** and **Messaging** application using **WebRTC** for peer-to-peer media streaming, with an engaging UI built in **Next.js** and backend powered by **Express.js** and **GraphQL**.
- Deployed backend services on **AWS EC2** with **HTTPS** and strict **TLS-secured WebSocket (WSS)** communication, achieving a **40% reduction in bandwidth** using GraphQL's optimized data retrieval strategies.
- Designed and implemented a **PostgreSQL** database hosted on **AWS RDS**, with foreign key linking of users and rooms, ensuring data integrity while efficiently managing over 1 million records ability to serve **20K+ concurrent users** with query latencies under **100ms**.
- Enhanced application performance by integrating **Redis** (in-memory on EC2) for caching—reducing query response times by up to **45%**—and secured the system using **JWT**-based authentication with end-to-end encrypted messaging, enabling support for **thousands of concurrent users** with scalable reliability.
- Integrated **Socket.IO** and **WebRTC** to enable real-time messaging and **peer-to-peer** video calling with latencies as low as **35ms**, reducing backend load by over **65%**, and handling 1,000 concurrent WebSockets.

•API Rate Limiter | Github *June 2025*

Tools: ***C++, Node.js, Express, TypeScript, CMake, Node-API, cmake-js***

- Developed a high-performance rate limiting module using native **C++** algorithms, integrated into a **Node.js** Express backend using **Node-API** and **CMake**.
- Implemented and exposed four core algorithms—Fixed Window, Sliding Log, Token Bucket, and Leaky Bucket—via a native addon to support over **10,000 API checks per second** with millisecond latency.
- Utilized **cmake-js** for cross-platform builds and ensured clean modularity between native and JS layers; compiled addon into a '.node' binary and deployed alongside a TypeScript server.
- Designed testable endpoints with query-based input to simulate real-time load testing, enabling efficient rate-limiting decisions in production-grade APIs and reducing runtime overhead by **40%**.

Technical Skills

- **Languages:** C++, JavaScript, TypeScript, Python, HTML, CSS.
- **Frameworks:** Next.Js, React, Express, GraphQL, Tailwind.
- **Cloud/Databases:** AWS, MongoDb, Firebase, PostgreSQL, Redis.
- **Tools:** Git, Github, Vercel, Docker, Linux, Sockets, ORM, VS Code, Gemini.
- **Course Work:** Data Structures and Algorithm, Object-Oriented Programming, Database Management System, Operating System, Computer Networks

Achievements | Leetcode | CodeChef| Codeforces

•National Finalist, Code with Cisco 2025 – Ranked Top 75 out of 30,000+ participants across India.

•3 star at Codechef (max 1750) | **Global Rank: 5** in Starters 159 | Knight at LeetCode

•Specialist at Codeforces (max **1450**) | Global Rank: **1712 in Codeforces Round 1031 (Div 2)**

•1800+ problems solved across all coding platform | **Rank: 395** in Leetcode Weekly Contest 467

•2nd position in the Bit N Build Hackathon, across Bihar state

Positions of Responsibility

•Web Team Co-lead/ App Development team Member, Hackslash , NITP *May 2023 - Present*

- Collaborated to the development of the website for **national-level hackathon ByteVerse** using Next.js and integrating **RESTful APIs** for dynamic content, and optimizing performance and Availability through **lazy loading**, and **server-side rendering** to enhance the **SEO score by 80** . **Link**