

Alok Kumar Sharma

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Internship

Web Developer Intern | [Link](#)

Nov 2025 – Jan 2026

Emertxe Information Technologies – Web Stack Academy

- Built and deployed 5+ REST APIs enabling efficient frontend–backend data flow and modular architecture.
- Implemented JWT authentication with bcrypt password hashing to prevent unauthorized access.
- Integrated Razorpay payment gateway to enable seamless and faster checkout experience.
- Developed reusable backend modules and optimized API response handling for improved performance.

Projects

Deep Packet Inspection | C++, Multithreading | [Link](#)

Jan 2026 – March 2026

- Built a C++ DPI engine parsing Ethernet/IP/TCP headers and extracting TLS SNI fields from raw PCAP files.
- Implemented multithreaded LB-FP pipeline with 5-tuple hashing for per-flow affinity across 4 Fast Path.
- Designed flow tracking using hash maps on tuples for connection state and domain/IP-based blocking.
- Architected a modular system separating PCAP I/O, protocol parsing, SNI extraction, and rule management.

URL Shortener Service | MERN Stack | [Link](#)

Dec 2025 – Jan 2026

- Developed scalable URL shortener service that converts long URLs into compact, sharable links and efficiently redirects the users to their original destination.
- Designed scalable MongoDB structures supporting reliable storage with flexibility for future insights & growth.
- Engineered collision-resistant short code generation to maintain lookups and consistent mapping.
- Strengthened input validation and failure handling mechanisms for secure, dependable fault-tolerant link.

CodeSync IDE | MERN Stack | [Link](#)

Oct 2025 – Dec 2026

- Architected a real-time collaborative IDE supporting concurrent multi-user code editing with live cursor sync and user presence tracking via Socket.IO.
- Implemented Role-Based Access Control (RBAC) with multiple hierarchy enforced at both REST API middleware and socket event level.
- Built a hierarchical file system with recursive multiple operations and case-insensitive duplicate prevention using compound indexes.
- Engineered a version history system enabling file snapshot saves and one-click restore, with debounced auto-save reducing unnecessary DB writes.

Achievements

Runner Up – Hack-N-Win Hackathon | [Link](#)

March 2026

Winner – Code-A-Fest Hackathon | [Link](#)

Feb 2026

2nd Runner Up – Claude-A-Solve | [Link](#)

Sept 2025

Certificate

Oracle Database Foundations Certified Junior Associate | [Link](#)

March 2026

Technical Skills

Languages: - C++, JavaScript, TypeScript

Frameworks & Libraries: - React.js, Node.js, Express.js, Redux, Socket.IO

Databases: - MongoDB, PostgreSQL

Tools & Platforms: - Git, GitHub, Docker, AWS (basics), Linux (Ubuntu)

Core Competencies: - REST API Design, System Design, Real-time Systems, Microservices, DSA

Education

Lovely Professional University

2023 – Present

Computer Science and Engineering — CGPA: 6.3

Phagwara, Punjab

Tender Heart Senior Secondary School

2021– 2023

12th with Science — Percentage: 77.2

Ranchi, Jharkhand

St. Mary's Public School

2020 – 2021

10th with Science — Percentage: 78

Giridih, Jharkhand