Yash Kumar Singh

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EDUCATION

- **National Institute of Technology Durgapur** — 2024 – *Present*
  B.Tech in Chemical Engineering — *CGPA: 7.5/10*
  Relevant Coursework: Data Structures & Algorithms, Object-Oriented Programming, Database Management Systems, Operating Systems

TECHNICAL SKILLS

- **Languages:** JavaScript (ES6+), TypeScript, C, C++
- **Frontend:** React.js, Next.js, Tailwind CSS, Redux
- **Backend:** Node.js, Express.js, REST APIs, WebSockets, Socket.io
- **Databases & Authentication:** MongoDB, MySQL, Redis, JWT, NextAuth.js, Clerk
- **Core CS:** Data Structures & Algorithms, OOP, DBMS, Operating Systems
- **DevOps & Tools:** Docker, Git, GitHub, GitHub Actions(CI/CD), Linux, Postman, Vercel, Render, Figma

EXPERIENCE

- **Full Stack Developer Intern**, Techxica Technology Pvt. Ltd. *(Remote)* — *Nov 2025 – Present*
  - Built e-commerce product management for 40+ products, admin workflows, and payment gateway integration.
  - Redesigned company website using React, Tailwind CSS, and REST APIs, reducing load time by $\sim 25\%$.
  - Maintained clean codebases through Git workflows, PR reviews, and collaborative development practices.

PROJECTS

- **BudgetTracker AI (Full-Stack Application)** — (Live Demo | GitHub Repo)

  Tech Stack: Next.js 14 (TypeScript), TailwindCSS, MongoDB, Clerk Auth, Chart.js, OpenRouter API

  - Built expense tracker with OpenRouter LLM API for AI categorization across 6+ categories, reducing manual entry by $\sim 90\%$.
  - Implemented Chart.js analytics dashboard with bar/pie charts for spending trends supporting dark/light mode.
  - Integrated MongoDB connection pooling and AI-generated personalized spending insights with budget recommendations.
  - Developed Clerk authentication with protected routes and type-safe TypeScript API endpoints for enhanced security.

- **Expense Splitter App (Real-Time System)** — (Live Demo | GitHub Repo)

  Tech Stack: React (TypeScript), TailwindCSS, Node.js, Express.js, MongoDB, Socket.io

  - Developed real-time expense platform using Socket.io WebSockets with $< 100ms$ latency, supporting 20+ concurrent groups.
  - Built Express.js RESTful API with flexible splitting algorithms, JWT authentication, bcrypt password hashing, and automated calculations, reducing manual work by $\sim 80\%$.
  - Implemented React.lazy() code-splitting for route-based lazy loading, reducing initial bundle size by $\sim 30\%$.
  - Designed responsive TailwindCSS UI with MongoDB schema for persistent group storage and expense tracking.

- **LRU Cache Implementation (DSA + Low-Level Design)** — (GitHub Repo)

  Tech Stack: C++, STL, Hash Maps, Doubly Linked Lists

  - Implemented memory-efficient LRU Cache with **O(1)** get/put operations using `unordered_map` and custom DLL.
  - Designed automatic eviction policy reflecting real-world cache systems used in browsers and databases.
  - Applied OOP principles with encapsulation and efficient memory management.

ACHIEVEMENTS

- **Smart India Hackathon 2025:** Developed disaster response drone dashboard integrating Raspberry Pi APIs for real-time thermal imaging and GPS tracking, advancing to college finals.
- **LeetCode:** Solved **200+ problems** across arrays, trees, graphs, dynamic programming, and backtracking.
- **GitHub:** Maintained **500+ contributions** across 6+ repositories, including a 30-day C++ OOP/STL practice series.
- **Problem-Solving:** Optimized algorithms from **O(n²) to O(n log n)** and implemented cache-efficient data structures.
- **Leadership:** Coordinated Alumination 2025 (Alumni Fest) at NIT Durgapur for 100+ alumni attendees.