

# VEDANT RAJPUT

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## Education

**Indian Institute of Information Technology, Nagpur**

*B.Tech in Computer Science with specialization in Human Computer Interaction*

**Expected June 2027**

*CGPA: 8.46/10*

## Relevant Coursework

- Data Structures
- Database Management
- OOP
- Operating System
- Algorithm Analysis
- Software Engineering
- Computer Networks
- Computer Architecture

## Experience

**TRIVENI GLOBAL SOFTWARE SERVICES LLP**

**May 2025 – July 2025**

*Backend Engineer Intern*


*Surat, Gujarat*

- Engineered the EcoGrocery WebAPI in ASP.NET Core, implementing **6–8 production-grade REST APIs** with CORS, JWT authentication, RBAC, and structured error handling.
- Implemented **Stripe Checkout** and developed product/order processing modules using a layered backend architecture, improving API and SQL efficiency by **20–25%**.
- Architected SQL Server schemas and **10+ stored procedures**, collaborating with the backend team and following Git workflows to ensure scalable, SOLID-aligned code quality.

## Projects

**National Placement Mission Platform (SIH 2025 Winner)** *Next.js 14, Prisma, PostgreSQL, Node.js* **December 2025**

- Led the winning Smart India Hackathon solution by architecting a multi-tenant placement ecosystem for students, placement cells, employers, and faculty mentors with role-based dashboards.
- Delivered bulk CSV import/export with validation, mentor approval workflows, analytics dashboards, and recommendation hooks powered by Next.js server components, Prisma ORM, and PostgreSQL.
- Integrated NextAuth-based authentication, automated notifications, interview scheduling, and audit logging; deployed full-stack solution on Vercel with hardened API security.

**Eco-Friendly Grocery Web Application**  | *React.js, Vite, Node.js, Express 5, JavaScript, MongoDB* **September 2025**

- Built a MERN sustainable grocery platform with responsive React/Vite UI (Tailwind, CoreUI) and Node.js/Express 5 backend using MongoDB/Mongoose for scalable data management.
- Integrated cookie-based JWT authentication with RBAC, seller dashboards for product management, Cloudinary image uploads, and Stripe Checkout with webhook-driven order confirmation.
- Developed search, category filters, eco-tags (local, plastic-free, high-protein), CO<sub>2</sub>e estimates, and complete cart-address-order workflow with optimized REST APIs and centralized error handling.

## Publications

**Hybrid Metaheuristic Optimization using HM-MPA**

**March 2025 – present**

*First Author*

*Under Review (IEEE)*

- Proposed HM-MPA, combining Harmony Memory with Marine Predators Algorithm, achieving **10–18% higher accuracy** across **57 KP benchmark datasets**.
- Implemented a full C++ optimization pipeline with PBIL learning, Lévy/Brownian motion updates, adaptive restarts, and ratio-based repair; generated convergence logs and statistical reports.
- Validated improvements over 27 state-of-art algorithms using **Friedman ranking**, best/mean score evaluation, and runtime benchmarking.

## Technical Skills

**Languages:** C++, C, JavaScript, TypeScript, SQL

**Core CS & Backend:** Data Structures, Algorithms, OOP, RESTful APIs, Node.js, Express.js, PostgreSQL

**Systems & Tools:** Linux/UNIX, Git/GitHub, Docker, JWT Authentication, GDB, Postman

## Achievements

- **Smart India Hackathon 2025:** National winner out of 1000 Teams for building the unified placement mission platform for institutes, employers, and faculty stakeholders .
- **TCS CodeVita Season 12:** Secured **World Rank 362** out of 444,000 participants from 3,500+ institutes in Round 2 of the world's largest global programming contest.
- **Competitive Programming:** Max Ratings — CodeChef (1628, 3 Star), LeetCode (1779, Top 8%).
- **Competitive Coding & DSA:** Solved **800+ problems** across LeetCode, CodeChef, GFG.
- **Hackathons:** Secured **4th Rank** in National-Level Hackathon conducted by **IIIT Surat**.