

# Harsh Raj

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## Summary

Backend-focused Software Engineer (CSE 2025) with a strong foundation in full-stack development. Experienced in building scalable SaaS applications using Next.js, Node.js, and PostgreSQL. Proven track record of automating network workflows during internship at BT Group. Actively seeking Software Development Engineer roles to leverage skills in system design, API development, and cloud deployment.

## Technical Skills

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

**Frontend:** Next.js 16 (App Router), React.js, Tailwind CSS, HTML5/CSS3

**Backend:** Node.js, Express.js, REST APIs, Server Actions, Webhooks

**AI & Data Engineering:** RAG (Retrieval-Augmented Generation), LangChain, Vector Databases (Pinecone), Gemini API

**Databases & Cloud:** PostgreSQL, Prisma ORM, AWS (EC2, S3), Vercel (Edge Functions), Docker

**Tools & Platforms:** Git, GitHub, Postman, Stripe API, Clerk Auth, Linux

**Core CS:** Data Structures & Algorithms, OOP, DBMS, OS, System Design

## Projects

### LinkSnap – Scalable URL Shortener

Live – GitHub

2025

*Full-Stack Web Application (PostgreSQL, Prisma)*

- Developed a production-grade URL shortener with high-throughput redirection using **Next.js Edge Middleware**.
- Designed a normalized **PostgreSQL** schema for tracking click analytics and user history.
- Implemented secure **Google OAuth** authentication and deployed via CI/CD pipelines on Vercel.

### AI-Native PDF Chat Assistant

GitHub

2025

*Full-Stack SaaS (Next.js 16, RAG, LangChain)*

- Built a scalable SaaS platform enabling users to chat with PDF documents using **RAG** and **Google Gemini Pro**.
- Implemented semantic search with **Pinecone** vector embeddings to retrieve context-aware document chunks.
- Engineered a serverless backend using **React Server Components** and **Server Actions** for high performance.
- Integrated **Stripe** for subscription billing and **Clerk** for secure authentication, managing data with **Prisma/PostgreSQL**.
- Optimized PDF ingestion using **pdfjs-dist**, reducing processing latency for large files.

## Experience

### BT Group

Gurugram, India

Jan 2025 – Jul 2025

*Graduate Engineer Trainee – Intern*

- Automated the validation of structured network configuration data by developing Python scripts, reducing manual effort by 40%.
- Diagnosed root causes of network validation failures in a high-pressure environment, ensuring stability in critical infrastructure.
- Collaborated with cross-functional engineering teams in an Agile setting to streamline deployment workflows.
- Authored technical documentation and failure analysis reports utilized by senior network architects.

### Open Health Systems Laboratory

Remote

May 2024 – Jul 2024

*Summer Intern – Cloud & Systems Research*

- Analyzed cloud-hosted system architectures and backend data pipelines for healthcare platforms.
- Conducted research on scalable deployment approaches and assisted in high-level system design documentation.

## Education

### Amity University

Noida, India

*B.Tech in Computer Science Engineering – CGPA: 7.78*

Aug 2021 – Jun 2025

## Leadership & Certifications

### Oracle Certified Foundations Associate – Cloud Computing

**Student Lead, Software Engineering Club:** Mentored juniors in backend development and conducted coding sessions.

**Samsung PRISM Researcher:** Selected for industry-academia R&D collaboration project.