

Pradhyumna R

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Professional Summary

Software engineer who enjoys building reliable systems that simplify complex operational workflows through thoughtful system design, backend engineering, and infrastructure automation, with a strong interest in databases, optimization, and scalable software architecture.

Experience

Sai Atharv Groups

Remote, India

Freelance DevOps Engineer

October 2025 - March 2026

Engineered reusable Ansible playbooks for end-to-end Linux server provisioning, automating package installation, service configuration, and environment initialization.

Standardized infrastructure configuration and deployment workflows with Ansible, improving environment consistency and reducing manual, error-prone provisioning steps.

Skills

Data Structures & Algorithms · DBMS · Generative AI Workflows · GitHub Copilot · Prompt Engineering · Tailwind CSS · Ansible · Bash · C · Docker · Express.js · Git · Javascript · Linux · MongoDB · MySQL · Next.js · Node.js · Operating Systems · PostgreSQL · Postman · Python · React.js · REST APIs · SQL

Projects

ExamSuite

github.com/R-Pradhyumna/EMS-MITM | React · PostgreSQL · RLS · Edge Functions

- Streamlined question paper workflows for 250+ institutional users by engineering a centralized examination platform that replaced fragmented Google Forms, with the solution receiving a Principal's Letter of Appreciation for improving examination workflow security.
- Implemented advanced Row-Level Security (RLS) policies and RBAC to enforce strict data isolation, preventing unauthorized cross-role access to sensitive examination data.
- Architected a normalized PostgreSQL schema with 7 relational tables, workflow-driven state transitions, and database triggers to enforce secure paper lifecycle management while maintaining a centralized audit trail.

Automated Timetable Scheduler

github.com/R-Pradhyumna/Timetable-generator | Next.js · C++ · PostgreSQL · Google OR-Tools

- Eliminated hours of manual timetable preparation by developing an automated academic scheduling system using Google OR-Tools CP-SAT, generating deployment-ready timetables in 4–5 seconds per section with 85–90% scheduling completeness.
- Prevented critical faculty double-booking and cross-section conflicts by engineering a custom C++ constraint solver supporting 9 hard scheduling constraints, validated through a robust suite of 75 automated tests.

- Architected a scalable optimization platform integrating a C++ CP-SAT solver with Next.js APIs, React, PostgreSQL, and Supabase to support efficient multi-section timetable generation for academic institutions.

Work Location Tracker

github.com/R-Pradhyumna/work-location-tracker | React • Express.js • PostgreSQL • JWT

- Resolved hybrid workplace communication bottlenecks by developing an enterprise location management platform, reducing daily status updates to under one minute while providing managers with real-time workforce analytics.
- Engineered a scalable Express.js and PostgreSQL backend following a strict Controller–Service–Repository architecture, exposing 9 REST API endpoints to manage role-based access across four workplace states (WFO, WFH, Leave, Holiday).
- Strengthened application security by implementing JWT authentication with HTTP-only cookies and bcrypt password hashing, while improving frontend load performance through lazy-loaded routing across 7 protected pages.

Communication Systems Visualizer

github.com/R-Pradhyumna/Visualizer | JavaScript • Plotly.js

- Replaced static whiteboard waveform drawings for EC&E faculties with a browser-based visualizer enabling real-time demonstrations across analog modulation, digital modulation, and Nyquist sampling.
- Built 3 modular visualization engines using JavaScript and Plotly.js, enabling reusable real-time waveform rendering on a fully client-side architecture with zero backend dependency.
- Translated communication systems theory into accurate interactive waveform simulations that were subsequently used by faculty for classroom demonstrations and formula verification.

Education

MIT Mysore

May 2026

Bachelor of Engineering (BEng) | Information Science & Engineering | GPA: 8.89

Mysore, India

Certifications

Mastering Linux

March 2026

Udemy

https://drive.google.com/file/d/1HsEXSNojxBfFYoXntnO5A5U7hAzeybPT/view?usp=drive_link

Node.js, Express & MongoDB

December 2025

Udemy

https://drive.google.com/file/d/1bROXy--on3KQOFoH_AhoTYclgLNmHzZr/view?usp=drive_link

The Ultimate React Course

April 2025

Udemy

https://drive.google.com/file/d/1eqJhMYUr_xvTWTIE2RDo0ATdIWB2Dilo/view?usp=drive_link