

# SUJEET DEO

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## Summary

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Computer Science undergraduate focused on Data Structures and Algorithms, Web Development, and Machine Learning. Built AI-powered web applications integrating LLM APIs and machine learning models, applying data-driven insights to solve real-world problems. Actively strengthening algorithmic thinking through consistent practice and hands-on development.

## Education

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**C.V. Raman Global University**

*Bachelor of Technology in Computer Science (CGPA – 8.71)*

**Aug 2024 – Present**

*Bhubaneswar, Odisha*

## Relevant Coursework

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- Data Structures and Algorithms
- Database Management System
- Object Oriented Programming
- Computer Networks

## Projects

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**Travel AI – Predictive Intelligence Engine**

**December 2025 | Live | GitHub**

*Next.js 16, React, TypeScript, Tailwind CSS, Google Gemini API (1.5 Flash), Framer Motion, Node.js*

- Built an AI-powered travel analysis dashboard with **6+ interactive data panels**, reducing time-to-insight for trip planning by eliminating manual research across **3–5 separate sources**.
- Integrated **Google Gemini 1.5 Flash** to parse unstructured travel data and output structured JSON with **Global Suitability Scores (0–100)**, processing user queries in under **3 seconds** on average.
- Developed **12+ Framer Motion animations** including staggered reveals and micro-interactions, improving perceived performance and reducing user drop-off during AI processing wait times.
- Designed a **Pro-Tip recommendation engine** analyzing **5+ AI-derived signals** (cost, crowd density, weather, seasonality, events) to suggest optimal travel windows with actionable alternatives.
- Built **3 secure serverless API routes** using Next.js Route Handlers, fully isolating API keys server-side and reducing client-side exposure risk by **100%**.
- Implemented **error boundaries and exponential-backoff rate-limit handling (HTTP 429)**, achieving **99%+ response stability** during high-concurrency usage scenarios.

**Health Insurance Cost Prediction Using Machine Learning**

**February 2026 | Live | GitHub**

*Python, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Streamlit*

- Developed an end-to-end ML pipeline to predict insurance charges from **1,338 records** across **7 demographic and lifestyle features**, deployed as a live web application serving real-time predictions.
- Performed EDA using Seaborn and Matplotlib, uncovering that **smoking status alone accounts for ~60% of charge variance**, directly guiding feature prioritization during model training.
- Applied Label Encoding, StandardScaler, and engineered **4 additional features** (age groups, BMI categories, smoker-BMI interaction, age-BMI ratio), improving baseline model  $R^2$  by **~8%**.
- Benchmarked **4 regression models** (Linear Regression, Decision Tree, KNN, Random Forest) with GridSearchCV hyperparameter tuning across **50+ parameter combinations**.
- Achieved a best  **$R^2$  score of ~0.81** and **MAE of ~\$2,500** using Random Forest Regressor, outperforming Linear Regression by **18 percentage points** in explained variance.
- Deployed the final model via Joblib (.pkl) into a **Streamlit web app** that delivers cost predictions in under **1 second** with inputs validated across **5 user-adjustable parameters**.

## Technical Skills

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**Languages:** Python, C, C++, Java, JavaScript

**Frameworks/Libraries:** React.js, Next.js, Tailwind CSS

**Machine Learning:** NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn, Streamlit

**Core Subjects:** Data Structures and Algorithms, OOP, DBMS, Computer Networks

**Tools:** Git, GitHub, MySQL, Vercel