Deo Pathak

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Education

Parul University 2021 – Ongoing
B.Tech Computer Science and Engineering *CGPA: 8.3/10*

Professional Summary

Software Engineer with experience in **full-stack web developmen**t (React, TypeScript, Nest.js) and a strong passion for **machine learning**. Enthusiastic about applying ML techniques to solve real-world problems, particularly in data-driven applications and predictive modeling. Adept at optimizing web applications, data analysis, and collaborating on client projects.

Experience

Intern at Cygbit December 2024 – March, 2025
Vadodara, Gujarat

- Developed full-stack web applications using **React.js, Next.js, Nest.js,** and **Tailwind CSS**, ensuring responsive and dynamic UIs.
- Designed and implemented scalable **system architectures (HLD & LLD)**, utilizing **MongoDB, SQL, Prisma,**and **GraphQL** for efficient data management.
- Enhanced authentication and security using **Passport.js**, and optimized state management with **Redux**.
- Wrote unit and integration tests with **Jest** and **Vitest** to maintain code reliability and robustness.

Intern at WhirlWind May 2024 – June 2024
Vadodara, Gujarat

- Improved website load speed by 30% through asset optimization and Google PageSpeed insights.
- Developed interactive web applications using **WordPress** and **WebFlow**, increasing user engagement.
- Created custom client-side calculators and improved conversion rates through optimized UX design.

Intern at Cygbit May 2023 – June 2023
Vadodara, Gujarat

- Built responsive websites using **React, Redux, HTML,** and **CSS**.
- Implemented mobile-friendly design principles for improved accessibility and user experience.
- Created intuitive UI components, enhancing website usability and navigation.

Certifications

Data Analytics with Python | *NPTEL - Indian Institute of Technology [Roorkee]* Jan-Apr 2024
Cryptography I | *Stanford Online - Coursera* February 2024
Foundations Of CyberSecurity | *Google - Coursera* August 2023

Projects

Truncated SVD from Scratch | *Python, NumPy, Matplotlib*

- Implemented **Truncated SVD** from scratch, leveraging numerical linear algebra techniques for dimensionality reduction.
- Applied **Gavish-Donoho's** method to determine the optimal rank using the formula: $\tau = \frac{4}{\sqrt{3}} \cdot \gamma \cdot \sqrt{n}$, where τ is the singular value threshold, γ represents noise, and n is the matrix dimension.
- Used structured functions for SVD components: U was based on cosine and sine functions with exponential decay, Σ had predefined singular values, and V followed a sinusoidal pattern.
- Achieved efficient matrix compression while preserving key data structures and patterns.

Customer Churn Prediction | *Python, Scikit-learn, Flask, Pandas, NumPy*

- Developed a machine learning model to predict customer churn with **96.88%** accuracy using Random Forest.

* Performed feature engineering, sentiment analysis, and optimized feature selection for better model performance.
* Deployed the model as a **REST API using Flask**, enabling real-time churn prediction.
* Processed and cleaned customer data, handling missing values and categorical encoding to improve accuracy.

New York Property Sales Analysis | *Python, Pandas, NumPy, Matplotlib*

* Analyzed 85,000+ NYC real estate transactions, identifying trends in borough-level pricing and seasonal shifts.
* Processed and cleaned datasets to handle missing values and outliers, ensuring accurate insights.
* Built visualization models to highlight property value hotspots.

Custom Linear Regression Model | *Python, Numpy, Pandas*

* Developed a linear regression model from scratch using **Ordinary Least Squares (OLS)** and **Gradient Descent**.
* Enhanced understanding of regression techniques by implementing optimization methods without ML libraries.
* Demonstrated strong data modeling and mathematical implementation skills.

Turfmate – Turf Booking System | *React, Node, Express, MongoDB*

* Built a full-stack web application for users to book turfs and form teams with local players.
* Integrated **user authentication** and **real-time booking system**, improving scheduling efficiency.
* Designed a responsive UI for seamless user interaction.

Technical Skills

Programming Languages: Java, Python, SQL (MySQL, SQLite), JavaScript, HTML/CSS, TypeScript, Tailwind CSS
Frameworks and Libraries: React (Redux), Node.js, JUnit, WordPress, WebFlow, Swing, pandas, NumPy, Matplotlib, Next.js, Nest.js
Developer Tools: Git, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ IDEA, Eclipse, Google Colab