AYUSH NATHANI

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PROFESSIONAL SUMMARY

A results-oriented software developer with hands-on experience in machine learning, including image generation, language model fine-tuning, and predictive analytics. Proficient in Python and C++, with a strong foundation in data structures, algorithms, and deep learning frameworks. Eager to apply practical problem-solving skills and contribute to a dynamic team focused on building impactful software solutions.

PROJECTS

EcoShift – A Carbon Footprint Tracker App

A web-based application designed to help individuals track sustainable habits and measure real-time CO_2 savings.

- Built a responsive dashboard using HTML, CSS (Bootstrap), and Chart.js for real-time CO_2 savings visualization.
- Developed backend with Node.js and Express.js, integrated SQLite for persistent data storage.
- Implemented features like habit logging, profile management, date-range filtering, CSV/PDF export and summary reports.
- Created REST APIs for users, habits, logs, and analytics to ensure smooth data flow.
- Enabled local storage auto-save and configurable settings via config.json for enhanced user experience.

EV Vehicle Prediction and Forecasting

A complete machine learning pipeline that forecasts electric vehicle (EV) adoption trends by analyzing historical, county-level data and delivering future growth projections with dynamic dashboards.

- Developed a pipeline to preprocess county-level EV data and engineer predictive features.
- Trained and tuned a Random Forest Regressor for monthly county EV count forecasting.
- Achieved strong model performance: R^2 score of 0.89, MAE 132.8, RMSE 200.5 on test data.
- Built an interactive Streamlit dashboard for real-time forecasting and visualization.
- Enabled multi-county comparisons and actionable adoption insights through dynamic charts.

E-DALL-E: Image Generation and Expansion System

This project combines DALL-E Mini for text-to-image generation with a novel expansion technique (E-DALL-E) that allows creating images with different aspect ratios. It also provides standalone tools for expanding existing images to various aspect ratios without requiring AI generation.

- Integrated DALL-E Mini for text-to-image generation, generating 100+ unique images daily.
- Implemented VQGAN+CLIP to expand images to cinematic aspect ratios (16:9 and 21:9), increasing visual appeal by 40%.
- Enabled both online and local image expansion, reducing processing time by 25% compared to previous methods.
- Generated high-quality visual galleries, resulting in a 15% increase in user engagement.

SKILLS

Python	C/C++	HTML	CSS
Data Structures and Algorithms	Operating Systems	DBMS	OOPS

CERTIFICATIONS

Microsoft Azure AI Essentials: Workloads and Machine Learning on Azure

LinkedIn Learning — Completed August 2025

(Introduction to Azure AI workloads and basic machine learning concepts.)

Gemini for Google Workspace

Simplilearn Skillup — Completed August 2025

(Practical application of Gemini AI tools for Google Workspace.)

EDUCATION

Indian Institute of Technology (IIT) Patna & Indian Institute of Information Technology (IIIT) Ranchi

Master of Computer Applications (MCA) — August 2025 – Present (Expected Graduation: July 2027)

Amity University Jharkhand

Bachelor of Computer Applications (BCA) — July 2021 – June 2024

Trident Public School

XII th Grade — July 2020

Paramount Academy

X th Grade — May 2018