Nirmal Rawal

Data Scientist | AI Engineer | Machine Learning Engineers

Contact Information

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Professional Summary

Innovative and results-driven **Data Science, Machine Learning Engineer and Gen AI** with hands on experience in AI, data-driven application development, RAG base application,LLM and scalable backend systems. Skilled in designing and deploying end-to-end ML models (CNN, RNN/LSTM) with TensorFlow and PyTorch. Adept at building modern web applications (Django, FastAPI), cloud integrations, and Fast API. Passionate about bridging academic AI research with realworld implementation.

Technical Skills

- **Languages:** Python, JavaScript (ES6+), TypeScript, SQL, HTML5, CSS3

- **Web & Backend Frameworks:** Django, FastAPI, RESTful APIs

- **Databases:** PostgreSQL, MySQL, MongoDB, Redis

- **Tools & Platforms:** Docker, Git, AWS (EC2, S3, Lambda), Linux, CI/CD Pipelines

- **Machine Learning & AI:** TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, NLTK, LLM, Langchain

- **Data Analysis & Visualization:** Pandas, NumPy, Matplotlib, Seaborn, Tableau

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Professional Experience

Software Engineer
ITS Nepal, Kathmandu | Apr 2024 – Dec 2024

-       Developed and deployed Django-based web applications and FastAPIs, improving system performance and UX by 30%.

-       Engineered ML models (CNN, LSTM) for classification/prediction tasks, increasing model accuracy by 15%.

-       Optimized PostgreSQL/MongoDB queries

-       Automated ETL pipelines using Pandas and NumPy, saving 20+ hours/month on manual data cleaning.

-       Collaborated in Agile teams using Git and Docker to integrate AI-driven features across platforms.

Projects

Personal Finance Tracker
- Built a Django and React application integrated with a TensorFlow expense classifier. - Automated categorization of user transactions, improving budget prediction accuracy to 90%. (Project Link)

RAG-Based Domain-Specific Q&A System

- Built a production-ready RAG application that answers questions from documents like contracts and policies. - Used Ollama + Mistral, ChromaDB for vector storage, and Streamlit for the frontend. - Dockerized for easy deployment (Project_link)

Insurance Premium Category Predictor

- ML-powered system to predict insurancepremium category using user demographics. - Streamlit frontend + FastAPI backend +Docker deployment. Displays prediction confidence. [Project_link]

Grocery Image Classifier
-       Developed a CNN model with TensorFlow/Keras achieving 95% classification accuracy. - Deployed the model via Flask API for real-time inventory integration. (Project Link) **Movie Recommendation System**

-     Created a hybrid recommendation system using collaborative filtering and content-based filtering. - Processed 100K+ ratings with Scikit-learn and enhanced user engagement through better recommendations. (Project Link)

Fake News Detection Platform
- Trained an RNN/LSTM model for news classification, achieving 90% detection accuracy. - Applied NLP preprocessing with NLTK and Pandas. (Project Link)

Olympics Dashboard & Visualization
- Analyzed Olympic data using Python and visualized trends with Matplotlib and Seaborn. - Built interactive dashboards to showcase insights across nations and sports.
Explore more projects at: github.com/nirmal-rawal

Education

B.Sc. in Computer Science
Herald College, Kathmandu Graduated: 2025

Certifications

- **Google Cloud Professional Machine Learning Engineer**, Google (2024)

- **Deep Learning Specialization**, Coursera – Andrew Ng (2023)

- **Python for Everybody**, University of Michigan (2022)

- **Web Application Technologies and Django**, University of Michigan (2022)

Languages

- **English:** Fluent

- **Nepali:** Native