

Nirmal Thomas

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EDUCATION

Noida International University
BSc in Data Science (8.41 CGPA)

UP, INDIA
Sep 2021 - June 2024

TECHNICAL SKILLS

Python Packages and Frameworks: NumPy, Pandas, Scikit-learn, Pytorch, Flask, Gunicorn, Transformers, Langchain, OpenAI, Pydub, DSPy, CrewAI, Unsloth, TRL, pyannote, audiostretchy

Cloud and Deployment: AWS, Azure, GCP, Git, Docker, MLOPs

ML Architectures: Supervised & Unsupervised ML Algorithms, NLP Techniques, RNNs, Transformers, LLMs, Grammatical Evolution

Database: MongoDB, SQL, VectorDB

WORK EXPERIENCE

Data Science Intern

Part Time

Jishu Excellence Pvt Ltd, Remote

July 2022 - July 2023

- Assisted in building an Audio Intelligence System that converts audio to diarized text with emotion and sentiment analysis, helping to identify prospective customers. Improved reliability by 12% using evaluation metrics and enhanced sentiment and emotion detection accuracy by 4% with SOTA NLP models. Added a chatbot feature to interact with transcriptions.

AI Engineer

Full Time

Pinak AI Solutions(PAiGPT), Noida, UP

Sep 2023 - Aug 2024

- Developed an AI-driven conversational engine to support government exam preparation.
- Created an Answer Engine using LLM agents, advanced prompting, and real-time crawled data for precise user query responses.
- Designed a comprehensive RAG architecture to enhance the domain adaptation of a proprietary LLM.
- Utilized the vector database to implement a scalable recommendation system.
- Introduced Hindi text generation by fine-tuning a base LLM with QLoRA and a custom SentencePiece tokenizer.
- Built a data ingestion pipeline using Change Data Capture (CDC) for integrating data from PDFs and websites.
- Developed full-stack AI/ML backend APIs using Flask.

Junior Data Scientist

Full Time

Pratham International, Remote

September 2024 - Present

- Developing AI-driven products that positively impact the lives of 500,000 children in India and Africa, enhancing educational outcomes.
- Designed and implemented BaalSakhi, a WhatsApp-based chatbot powered by Meta Llama and Retrieval-Augmented Generation (RAG), delivering tailored early childhood education and health guidance to resource-constrained communities.

PROJECTS

- Ultimate Chess**, A full-stack local chess game application designed to cater chess enthusiasts. This project features both Player vs Player (PvP) and Player vs Computer (AI) modes, offering a rich, interactive, and user-friendly chess experience. [GitHub](#)
- Energy-Consumption**, This project demonstrates the development of a scalable batch-serving machine learning architecture. The system integrates data ingestion, feature engineering, model training, batch prediction, and deployment. It utilizes modern ML tools and platforms like Hopsworks, W&B, Great Expectations, Airflow, FastAPI, Streamlit, and Docker while ensuring CI/CD through GitHub Actions and deployment on Google Cloud Platform (GCP). [GitHub](#)
- Spike Detector**, A terminal based program for Identifying periods of activity and state transitions using Viterbi and Bellman-Ford Algorithm. [GitHub](#)

DISSERTATION

- Decoder Trimming: A Feasible Alternative to Fine-Tuning for Text Classification with Large Language Models [Code](#)

EXTRAPROFESSIONAL ACTIVITIES

- Backtesting Crypto Trading Algorithms for HM Ventures using Python Packages
- Creating Crypto Trading Algorithms for HM Ventures using Grammatical Evolution