Nirajan Paudel

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Education

University of Colorado Boulder 2025–2027
Master's of Science in Computer Science
Relevant Courses: Data Center Scale Computing, Object Oriented Analysis & Design

Institute of Engineering, Tribhuwan University 2020–2024
Bachelor of Engineering–Electronics, Communication & Information Engineering

Work Experience

Machine Learning Intern March 2025 – May 2025
PalmMind Technology

- Built scalable RAG chatbots for EV dealers and insurance clients using OpenAI models, LangChain, and LangGraph, leveraging orchestrator-worker workflows, routing, and parallelization for efficiency.
- Enhanced data retrieval and system performance by implementing web scraping, OCR (Tesseract), and Redis-based caching for faster, context-aware conversational AI.

Teaching Assistant Sep 2024 – Feb 2025
Pashchimanchal Campus, Tribhuwan University

- Taught C programming and Information Systems (theoritical concepts on cloud computing, distributed systems, neural networks, data mining).
- Designed lab activities, guided semester-end projects, and provided detailed feedback to enhance students' practical programming and problem-solving skills.

Projects

Voice RAG Assistant
Personal Project

- Developed a web application using FastAPI to enable intelligent question-answering from audio content, integrating OpenAI's Whisper for transcription and Groq's LLaMA-3.1-8B for real-time responses.
- Implemented Retrieval-Augmented Generation (RAG) with LangChain and HuggingFace sentence-transformer embeddings, optimizing text chunking and semantic search for efficient context retrieval.

digitalME–Personal-Chatbot
Personal Project

- Built an AI-driven conversational chatbot using Groq's LLM and LangChain, integrating Hugging Face sentence-transformer embeddings for semantic understanding and natural language processing.
- Implemented Pinecone vector database for efficient storage and retrieval of document embeddings, enabling scalable context-aware responses with file and SQL querying capabilities.

Publications

Subedi, N. et al. (Jan. 2024a). "Drowsiness and Crash Detection Mobile Application for Vehicle's Safety". In: *Journal of IoT in Social, Mobile, Analytics, and Cloud* 6.1, pp. 54–66. URL: https://doi.org/10.36548/jismac.2024.1.005.

– (Jan. 2024b). "Nepali Image Captioning: Generating Coherent Paragraph-Length Descriptions Using Transformer". In: *Journal of Soft Computing Paradigm* 6.1, pp. 70–84. URL: https://doi.org/10.36548/jscp.2024.1.006.

Skills

Languages	C, C++, Python, SQL
AI/ML	Pandas, Numpy, Seaborn, TensorFlow, PyTorch, Scikit-learn, Keras, LangChain, LangGraph, CNNs, RNNs, Transformers, Linear/Logistic Regression, Clustering (K-means, DBSCAN)
Tools	Jupyter Notebook, Google Colab, Kaggle, Git, Selenium, pytesseract
Soft Skills	Communication, Team Collaboration, Time Management