

SUDARSHAN POUDEL

BSc. CSIT Student

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SudarshanPoudel

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I am a highly motivated BSc. CSIT student with a strong foundation in Machine Learning, Natural Language Processing, and Generative AI. Over time, I have expanded my expertise in LLMs, retrieval-augmented generation (RAG) and agentic workflows. I am currently focused on building AI-driven systems that leverage structured reasoning, prompt engineering, and multi-stage LLM pipelines to solve real-world problems efficiently.

PROJECTS

Data Analysis Agent

- Developed an Agentic RAG system that answers queries, generates charts and compiles reports from CSV, Excel, or JSON files.
- Used LangGraph for architecture, ReAct agents for decision-making and LLM for code generation.
- Executes Python code in an E2B sandbox, with automatic bug fixing and retrying if errors occur or results are incomplete.
- Supports multi-step reasoning and tool utilization to generate comprehensive reports from provided datasets.

PDF Parsing Pipeline

- Developed a robust pipeline to convert unstructured PDFs into structured Markdown, preserving headings, lists, complex tables and text formatting.
- Implemented a hybrid approach combining Docling's structural accuracy and OCR power with PyMyPdf's text extraction accuracy.
- Integrated npttf2utf for converting ASCII-based Nepali fonts to Unicode.

Smart Yatra

- Developed an AI trip planner that generates daily itineraries by matching tourist spots with user preferences, location, budget and duration.
- Used Gemini + LangChain for itinerary generation and KNN for hotel/food recommendations.
- Multi-step LLM process: selects top places via vector search, drafts an overall plan, then details each day's itinerary in proper JSON format.

SKILLS

- Machine Learning/Deep Learning:** Classical ML, Ensemble Methods, Feature Engineering, ANN, CNN, RNN, Transformers
- Natural Language Processing:** Text Processing, Document Parsing, OCR, Embeddings, Semantic Search, Web Scraping
- Languages & Libraries:** Python, Numpy, Pandas, Sklearn, NLTK, Pytorch, Langchain, Huggingface, FastAPI, Flask
- Generative AI & LLMs:** Prompt Engineering, RAG, Agent Automation, LlamaIndex, Crew AI
- Tools & Platforms:** Git, Github, Jupyter, Neo4j, Elasticsearch, Linux

EXPERIENCE

Inspiring LAB (AI/ML Intern)

Nov 2024 - Feb 2025

- Developed a high-accuracy PDF parsing pipeline for Nepali and English documents using advanced parsing techniques and libraries.
- Implemented GraphRAG with Neo4j and Langchain's GraphCypherQA for efficient graph-based data retrieval and question answering.
- Gained expertise in Elasticsearch and its Python API.
- Explored and implemented multi-agent frameworks like CrewAI, LangGraph, SmolAgents and LlamaAgent, with a focus on architecture and agent interactions.
- Created a Data Analysis Agent to process user queries, execute Python code, and generate structured insights from datasets.

Fusemachines (AI Fellowship)

Apr 2024 - Oct 2024

- Completed a 6-month AI Fellowship, covering key areas including Machine Learning, Deep Learning, Computer vision, NLP, Generative AI and MLOps.
- Developed a study support system as a final project.
- Participated in weekly quizzes, assignments, and hands-on practical exercises to apply theoretical knowledge in real-world projects.
- Gained proficiency in core machine learning concepts, including regression, classification, clustering, ensemble learning, Neural Networks, GAN etc.

EDUCATION

BSc. CSIT (Apr 2022-present)

Lumbini ICT Campus

Relevance Coursework: Artificial Intelligence, Image processing, Statistics, Linear Algebra, Calculus, DSA, DBMS, SE etc.

ACHIEVEMENTS

University Topper

Achieved the highest percentage in BSc. CSIT for the 1st and 3rd semesters