

Bhanuprasadh Santra

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EXPERIENCE

Software Engineering Intern, Xylon Research

Jun 2025 – Present | Bangalore, India

- Automated tax compliance analysis using AI models to detect regulatory inconsistencies in financial documents, cutting manual review time by 70%.
- Developed a multi-LLM architecture (GPT-4o + Groq's kimi-k2-instruct) to cross-verify invoice data extraction results, boosting accuracy by 40%.
- Built and deployed a FastAPI-based backend for all compliance tools, ensuring high concurrency, secure authentication, and smooth scalability.
- Designed a Python-based automated validation engine that translates complex UAE FTA VAT laws into structured, programmable rules.
- Implemented a resilient data pipeline for CSV invoice ingestion, integrating schema validation, detailed error logs, and automated cleanup scripts.

PROJECTS

Local RAG Document Assistant

- Built a secure, privacy-focused document assistant that runs entirely offline by integrating Llama 3 (via Ollama) with a local ChromaDB vector store, ensuring sensitive data never leaves the local environment.
- Engineered a complete RAG pipeline using LangChain to process PDF documents, implementing smart text chunking and semantic search to deliver highly accurate, context-aware answers to user queries.
- Developed a production-ready full-stack application featuring a high-performance FastAPI backend and an interactive Streamlit frontend, fully containerized with Docker for easy deployment and scalability.

Gemini-Powered RAG Knowledge Bot

- Engineered a full-stack RAG solution for contextual data querying, achieving high accuracy by integrating the Google Gemini LLM with a proprietary knowledge base.
- Optimized data retrieval using ChromaDB for efficient vector storage and similarity search. Leveraged LlamaIndex to manage indexing and minimize query latency.
- Deployed a production-ready application with an interactive Streamlit frontend, ensuring a seamless user experience with robust conversational context.

Network Security: AI-Powered Phishing Detection System

- Engineered an end-to-end Machine Learning pipeline for phishing detection using Scikit-learn, implementing custom data transformation and validation components to ensure high model accuracy.
- Developed a high-performance REST API using FastAPI and MongoDB to serve real-time predictions, optimizing data processing workflows for large-scale network security datasets.
- Designed a modular and scalable code architecture, utilizing object-oriented programming principles and robust exception handling to enhance system maintainability and reliability.

Advanced Web Scraper API

- Developed a production-ready web scraping API using Python and FastAPI, supporting static and dynamic sites through BeautifulSoup and Playwright.
- Designed the system to handle bulk scraping, data extraction, and screenshot capture, with built-in error handling, logging, and concurrency control for reliable performance.
- Packaged the application into a Dockerized microservice with RESTful endpoints, health checks, and Swagger documentation for easy deployment and integration.

SKILLS

Languages: Python, Go, SQL, Bash/Shell Scripting

Backend & APIs: FastAPI, Flask, RESTful APIs, Microservices Architecture

AI/ML Frameworks: PyTorch, TensorFlow/Keras, Scikit-learn, XGBoost, Hugging Face

LLMs & Prompt Engineering: LangChain, ChromaDB, Ollama, Vector Search, LLMs (Llama 3), RAG, Prompt Engineering

Tools: Docker, Kubernetes, AWS (S3, EC2, Lambda), CI/CD (GitHub Actions), MLFlow, Git/GitHub, Dagshub

Databases: MySQL, MongoDB, PostgreSQL

EDUCATION

Kakinada Institute of Engineering and Technology,
B.Tech in Computer Science (AIML)

Nov 2021 – Apr 2025 | Kakinada, India

Relevant Coursework: Data Structures & Algorithms, Database Systems, Operating Systems, Computer Networks, Distributed Systems, Machine Learning, Deep Learning