Harsh Sanjay Rathi

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Summary

Masters in AI & ML from the University of Adelaide, with expertise in machine learning, computer vision, and generative AI. Collaborated with the University of Adelaide on a research project using Vision Transformers (ViT) from Hugging Face for medical image classification. Certified in building end-to-end ML workflows with Python, TensorFlow, Scikit-learn, Keras, Pickle, and Streamlit. Developing GenAI applications with LangChain, OpenAI API (GPT-4), FAISS, Pinecone, Hugging Face Transformers, and multiple open-source LLMs. Experienced in multi-agent systems with CrewAI, AutoGen, and LangGraph for orchestrating intelligent, LLM-driven workflows.

Skills

Environment & Development Tools:
Python Virtual Environments (venv, virtualenv), Visual Studio Code (VS Code), Jupyter Notebook, Google Colab, Git, GitHub, Streamlit, Anaconda, Command Line Tools (CLI), pip, conda, OpenAI Playground, Postman.

Machine Learning & AI Libraries:
Scikit-learn, XGBoost, LightGBM, CatBoost, TensorFlow, Keras, PyTorch, Hugging Face Transformers, OpenAI API (GPT-4), LangChain, SentenceTransformers, NLTK, SpaCy, T5, BERT, GPT, OpenCV, ViT (Vision Transformers), Pillow, NumPy, Pandas, Matplotlib, Seaborn, Plotly, Pickle, Joblib, Flask (basic), FastAPI (basic), FAISS, Pinecone, CrewAI, AutoGen, LangGraph, MLflow, TensorBoard.

Projects

RESEARCH PROJECT AT UNIVERSITY OF ADELAIDE: The subject of my current research at the University of Adelaide involves developing an innovative initiative for Osteoarthritis (OA) Detection using Computer Vision. The research work tests Vision Transformers (VIT's) for analyzing joint MRI scans to detect and categorize early stages of OA. The research project demonstrates perfectly how the healthcare sector can be transformed by using Deep Learning and Machine Learning technologies under my role as an AI researcher.

Question Answer (QA) System: Deeper in NLP, with a curiosity of how Chat GPT works, I studied a Question Answer Based System Which Solves User queries with an input set of articles. Learned how TfidfVectorizer converts words to numbers, and how cosine similarity calculates the similarity score of question to the answer.

End-to-End: Used TensorFlow to develop a sentiment classifier and model for predicting customer churn. Both models were turned into serial data with pickle and deployed using Streamlit so they can be used in real-time through VS Code. The sentiment model applied NLP to movie reviews to find the sentiment, and the churn model used an ANN to determine if customers could possibly leave the bank.

AI/ML Courses & Certifications

Enrolled in a course "Complete Guide to Building, Deploying, and Optimizing Generative AI with LangChain and Hugging Face", by completing this course I will gaine practical understanding of open-source LLMs (including LLaMA, Falcon and Mistral) and API integration for GPT-4 alongside skills to use LangChain for prompt chaining and Hugging Face Transformers for model deployment and best practices for deploying AI applications in the real world

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Education

Master`s degree in Artificial Intelligence (2023-2025):
Did Masters of Artificial Intelligence at the University of Adelaide, with a focus on advanced machine learning, deep learning, and data-driven AI methodologies. Engaged in cutting-edge research and practical projects that explore the ethical and innovative applications of AI across various industries. Committed to gaining expertise in developing intelligent systems that solve real-world challenges and contribute to the future of AI technology.