

Harsh Sanjay Rath

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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.

Education

2023-2025 Masters of Artificial Intelligence

[The University Of Adelaide]

Advanced skills in machine learning, deep learning, and data-driven problem solving through both coursework and research projects.

2019-2022 Bachelor of Instrumentation

[PVPIT College Of Engineering (info@pvpitsangli.edu.in)]

Foundational knowledge in sensors, control systems, and industrial automation.

Implemented a practical project on an automatic irrigation system controlled via a mobile app.

Industrial Experience

GEN. AI:

Self-Explored

- Used web scraping with LangChain and BeautifulSoup 4 to collect data.
- Converted text to vectors using OpenAI models and stored them in FAISS vector database.
- Built prompt chains with LangChain and LangSmith to manage LLM inputs and outputs.

Developed and deployed the chatbot app using Streamlit with GPT-4o via OpenAI API.

THE UNIVERSITY OF ADELAIDE:

Research Project

- Deep Learning and Vision Transformers (ViTs) to analyze joint MRI scans and classify early stages of OA.
- Compared Pre-trained ViTs to traditional Deep Learning techniques

VIT (google/vit-base-patch16-224) outperformed all Deep Learning Architectures

Question Answer (QA) System:

- Question-answering system using input article dataset
- TF-IDF Vectorizer for converting text to numerical vectors
- Cosine similarity for measuring relevance between question and article

Understanding of information retrieval pipeline behind models like ChatGPT

AI/ML Courses & Certifications

Gen AI:

(Langchain and Hugging Face Libraries)

- Built cloud-based chatbots using **AWS Lambda**, **API Gateway**, **Amazon Lex**, and **Boto3** for AWS service integration.
- Integrated **OpenAI API**, **Ollama**, and **Transformers (Hugging Face)** to power LLMs both locally and in the cloud.
- Used **Visual Studio Code** with **Docker**, **Python**, and **Poetry** for environment setup, dependency management, and containerized development.
- Implemented secure RESTful APIs with **FastAPI**, managed credentials via **dotenv** and **AWS Secrets Manager**.
- Employed **LangChain** for LLM orchestration and vector retrieval using **FAISS**, **Chroma**, **Pinecone**, and **Weaviate**.

Machine Learning and Statistics:

- Data Handling & Preprocessing: NumPy, Pandas, OpenCV, Scikit-image, Imbalanced-learn.
- Modelling & Machine Learning: Scikit-learn, XGBoost, LightGBM, CatBoost, Statsmodels, PyCaret.
- Deep Learning & NLP: TensorFlow, Keras, PyTorch, NLTK, Gensim.
- Visualization & Evaluation: Matplotlib, Seaborn, Plotly, SHAP, LIME, Yellowbrick, Altair.

Employment History

2023-Present

Camp Australia

Before and After School Care

- Over two years of experience working at the OSHC childcare center at Our Lady of Grace School, supporting children's development in a safe and engaging environment.
- Supervising activities, assisting with learning support, and building positive relationships with both children and families.

2024-Present

SOCCAJOEYS

Soccer Junior Coach

- Soccer Coach at SoccaJoeys, leading fun and educational soccer sessions for young children.
- Developing motor skills, teamwork, and confidence through structured play and age-appropriate coaching.

Skills

- 2+ years at Our Lady of Grace School OSHC, supporting child development through supervision, activity planning, and family engagement.
- Soccer Coach at SoccaJoeys, leading structured sessions to build motor skills, teamwork, and confidence in young children.
- Proficient in Python, SQL, Pandas, NumPy, scikit-learn, with experience in ML modeling, data preprocessing, and statistical analysis.
- Built AI/ML apps using TensorFlow, PyTorch, Hugging Face, OpenAI API, Ollama, with strengths in NLP, deep learning, and computer vision.
- Deployed GenAI projects with LangChain, FAISS, Chroma, Pinecone, Streamlit, FastAPI, Docker, integrating LLMs, web scraping, and vector search.

Extracurricular Activities

College President for Event Organization

[PVPIT College of Engineering]

- leading the planning and execution of cultural fests, technical events, and student engagement programs.
 - Coordinated cross-departmental teams, managing logistics, sponsorships, and event promotion for large-scale college functions.
 - Led a team of volunteers, improving leadership, teamwork, and public speaking skills.
 - Participated in inter-college **technical and sports competitions**, representing the institution at multiple levels.
 - Actively involved in organizing **workshops, hackathons, and seminars**, fostering a collaborative learning environment.
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Reference

Mrs. Franca Brigante
Service Leader
Camp Australia
Ph: 0408373164

Mr. Daniyal Ames
Senior Coach
SOCCA JOEYS
Ph: 0429408992

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