

Vrushali Shreyas Ranadive

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EDUCATION

North Carolina State University, USA | *Master of Computer Science* | GPA: 4.0/4.0 Aug 2024- May 2026

Coursework: Artificial Intelligence, Neural Networks, Data Science, Data Analysis, Software Engineering, Design & Analysis of Algorithms, Cloud Computing

Dharmsinh Desai University, India | *Bachelor of Technology, Computer Engineering* | GPA: 9.32/10 Oct 2020- May 2024

Coursework: Data Structures, Web Development, Machine Learning, Artificial Intelligence, Image Processing, Big Data Analytics

SKILLS

- **Languages & Databases:** Python, C/C++, C#, R, Java, JavaScript, SQL, HTML/CSS, Oracle, MongoDB, MySQL, Microsoft SQL Server
- **AI & Data Science:** TensorFlow, Keras, PyTorch, HuggingFace, Ollama, LangChain, LangGraph, RAG, MCP, VectorDB
- **Web Dev Frameworks:** Django, ReactJS, NextJS, Express JS, Node JS, Angular JS, Spring MVC, Hibernate, ASP.NET, Bootstrap
- **Tools & DevOps:** MATLAB, Hadoop, Linux, Git, GitHub, Docker, Eclipse, AWS, CI/CD (Jenkins, GitHub Actions)
- **Certifications:** Deep learning by NVIDIA, LLM Application development with LangChain and OpenAI

WORK EXPERIENCE

Software Engineering Intern, Early Rehab Services Inc, Illinois, US June 2025-Present

- Working on the enhancement of billing and medical record management system developed for early intervention providers.
- Collaborating with development and marketing teams to enhance user interface functionality, assist in creating engaging training content, and explore innovative marketing solutions using agentic AI, while also ensuring HIPAA compliance.

Research Intern, Space Application Center, Indian Space Research Organization (ISRO) Dec 2023- Mar 2024

- Engineered and implemented a comprehensive full-stack solution for a software application focused on Payload Electrical Interface Definition. Utilized advanced technologies including Java, Java Servlet APIs, Bootstrap, HTML5, CSS3, and JavaScript for seamless integration and robust functionality.
- Achieved data centralization, eliminated redundancy, and optimized database intervention through intelligent data management strategies using MySQL. Collaborated with cross-functional teams to deliver scalable and effective solutions.

Software Engineering Intern, Linde Engineering May 2023 - Jun 2023

- Designed and implemented a full-stack application for Intranet Intern Management System while engaging in software development lifecycle phases. Leveraged technologies like .NET Core, Microsoft SQL Server and RESTful APIs. Successfully tested and validated RESTful APIs using Swagger UI Tools. Collaborated closely with stakeholders to gather requirements.

ACADEMIC PROJECTS

RAG Chatbot using LangChain and Ollama | Natural Language Processing, Large Language Models, Vector Database

- Built a RAG-based PDF chatbot using LangChain, FAISS, HuggingFace embeddings, and Ollama LLMs (Mistral), with custom prompts and fallback logic for out-of-context queries. Deployed a Gradio UI for real-time QA with conversational memory, chunked PDF parsing, and low-confidence detection.

AI - Generated Image Detection using ResNet-50 | Computer Vision

- Designed and implemented a deep learning pipeline to classify real vs. AI-generated images using the CIFAKE dataset.
- Achieved 94.99% test accuracy and 0.9892 ROC-AUC using transfer learning with ResNet-50 and EfficientNet-B0 architectures.
- Applied Grad-CAM for model explainability and conducted misclassification analysis revealing texture bias and shortcut learning.

Image Captioning | Computer Vision, Natural Language Processing

- Leveraged deep learning models- Inception v4 and ResNet-50 to extract features from the images in the Flickr30k dataset.
- Implemented LSTM (Long-Short Term Memory) and BERT (Bidirectional Encoder Representations from Transformers) models for Text Generation. Achieved notable evaluation metrics with a BLEU score of 0.1688 and a CIDEr score of 0.556.

Stock Price Prediction System | Machine Learning

- Developed & deployed a real-time web application that fetches market data from YahooFinance to predict stock prices using machine learning techniques like Recurrent Neural Networks. Implemented advanced machine learning algorithms, specifically Long Short-Term Memory (LSTM) networks and Autoregressive Integrated Moving Average (ARIMA) models, for predictive analysis with 83.28% accuracy. Utilized Streamlit for interactive data visualization.

Appointment Tracking System | Full-Stack Development, .NET Core, ReactJS, SQL Server

- Designed and developed a full-stack personalized Appointment Tracking System for efficient management of scheduled appointments and events leveraging technologies like .NET Core and React JS. This well authenticated system leverages Microsoft SQL Server as the relational database management system to store user profiles, appointments details and more.
- Successfully implemented .NET Core middleware and tested the RESTful APIs using Swagger UI.

SOCIETIES: IEEE Smart Village, Women in Computer Science, AI & Data Science Academy at NC State University