Charan Reddy Nandyala

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Professional Experience

Data Science Fellow | *University of California, Riverside* **June 2025 - August 2025**

- Engineered a conversational course-section recommender using Google ADK + Agent2 with Vertex AI (Gemini), enabling reasoning over student preferences (days/times) to return open sections.
- Integrated college-provided course data stored in BigQuery with a custom RAG engine, ensuring real-time updates by syncing every change from BigQuery into the retrieval pipeline.
- Delivered a functional prototype chatbot, showcasing rapid development of agentic AI workflows, API integration.

Machine Learning Intern | *Feynn Labs* **December 2023 – February 2024**

- Prototyped AI-driven products and services by applying machine learning models to validate functionality.
- Executed market segmentation using supervised learning methods (Decision Trees, SVMs, Regression), uncovering customer clusters and behavioral patterns.
- Structured business and financial models for AI solutions, aligning product viability with market insights.

Projects

Driver Monitoring System for Fatigue and Distraction Detection **March 2025**

- Built a real-time monitoring prototype combining face pose, eye, and yawn detection for fatigue classification.
- Implemented live video stream processing using TensorFlow/Keras and OpenCV, enabling the system to classify driver states as "Attentive," "Not Attentive," or "Drowsy" with high accuracy.
- Delivered a robust multi-modal solution addressing single-modal limitations to enhance road safety.
- **Tech Stack:** Python, Jupyter Notebook, TensorFlow/Keras, OpenCV, Machine Learning Libraries.

Compressive Sensing for Hyperspectral Image Compression and Reconstruction **May 2024**

- Applied the Jaya algorithm for optimized band selection, reducing hyperspectral data dimensionality while retaining critical spectral information.
- Integrated compressive sensing with a Residual Dense Network enhanced by spectral–spatial attention (RDN-SSAB), achieving high-quality image reconstruction with preserved fine-grained details.
- Achieved significant reductions in storage requirements and processing time, ensuring efficient handling of large-scale hyperspectral datasets.
- **Tech Stack:** Python, Jupyter Notebook, Machine Learning Libraries, IoT.

Technical Skills

Programming Languages: C, C++, Python, Java.
Database: MySQL, Hive, MongoDB.
Libraries / Frameworks: Pytorch, Tensorflow, Opencv, Pandas, NumPy, MatPlotlib, SciPy, Seaborn.
Cloud Technologies: GCP, AWS, Hadoop.
Coursework: Data Structures and algorithms, OOPs, Machine learning, Computer networks, Cloud Computing, Big Data.
Skill Badges: Big Data, Security, Smart Analysis, and Infrastructure and Modernization in GCP.

Publications

Hyperspectral Band Selection using Modified Jaya Optimization Algorithm **2024**
2024 6th International Conference on Energy, Power and Environment (ICEPE) *Shillong, India*

Education

University of California, Riverside **Riverside, CA**
Master of Science in Computational Data Science (3.90 GPA) *September 2024 - Present*

Amrita Vishwa Vidyapeetham **Coimbatore, IN**
Bachelor of Technology in Computer and Communication Engineering (3.15 GPA) *September 2020 - June 2024*

Leadership

Intel IOT Club **2022 – 2023**
Mentor *Amrita Vishwa Vidyapeetham*