Nikhil Chowdary Paleti

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Objective

Highly motivated Data Science master's student with **6 published research papers** and a solid foundation in AI and ML. Experienced in leading the design, development, and deployment of **scalable AI systems**. Passionate about leveraging machine learning to solve complex problems. Seeking an internship to contribute to innovative and impactful projects.

Education

University of California San Diego Sep 2024 – Jun 2026 (Expected)
Master of Science in Data Science
- **Courses:** Adv. Data-Driven Text Mining, Probability and Statistics for Data Science, Data Ethics

Amrita Vishwa Vidyapeetham University Oct 2020 – Jun 2024
Bachelor of Technology in Computer Science and Engineering (Artificial Intelligence) ***GPA: 9.15/10***
- **Courses:** AI in Natural Language Processing, AI in Speech Processing, Deep Learning for Signal & Image Processing, Deep Reinforcement Learning, Python for Machine Learning, Bigdata Analytics

Technical Skills

Frameworks: Transformers, PyTorch, TensorFlow, LangChain, crewAI, NumPy, Keras, Scikit-Learn, SpaCy, NLTK, TensorBoard, OpenCV, Streamlit, Gradio, Pandas, Matplotlib.
Specializations: Natural Language Processing, Computer Vision, Generative AI (Large Language Models).
Programming Languages: Python (Advanced), SQL (Advanced), C++ (Intermediate).
Tools & Cloud: Docker, Git, AWS, Google Cloud Platform (Vertex AI, Compute Engine, Vision API).

Experience

Tech Profuse Pvt Ltd Jan 2024 – Jun 2024
Machine Learning Engineer Intern (Team Lead, Team of 3) *Hyderabad, India*
Tech Stack: Python, Large Language Models (LLM), OpenCV (CV2), REST APIs
- Developed an **unstructured data extraction API** with **Gemini 1.5 Pro LLM**, processing **50k** bill of lading documents in **15 hours**, achieving a **90%** reduction in manual data entry requirements from employees.
- Engineered a **RAG pipeline** for **email classification and summarization** using the **Gemini 1.5 Flash model**, increasing the support team's capacity to handle **70+ issues daily** from **30**.

Dr. Sowmya's Lab Jan 2023 – Sep 2023
Research Assistant *Coimbatore, India*
Tech Stack: Python, Tensorflow, PyTorch, CNNs, Data Processing
- Co-authored a research paper published in **Digital Signal Processing**, enhancing **Parkinson's Disease (PD) classification** accuracy and explainability using **MRI data** and **Grad-CAM** visualization.
- Enhanced **PD classification** by fine-tuning **12 CNNs** on T1-weighted MRI and optimizing MRI slice selection from **182 to 87 slices**. Identified **VGG19** as the top-performing model.

Publications

- **Unleashing the Power of Dynamic Mode Decomposition and Deep Learning for Rainfall Prediction in North-East India**, *ICCAIML 2024*, Springer, doi: 10.1007/978-3-031-71481-8_4 Sep 2024
- **Enhancing Knee Osteoarthritis Severity Level Classification Using Diffusion Augmented Images**, *ICACECS 2023*, Springer, doi: 10.2991/978-94-6463-314-6_27 Dec 2023
- **A Few-Shot Approach to Dysarthric Speech Intelligibility Level Classification Using Transformers**, *14th ICCCNT*, IEEE, doi: 10.1109/ICCCNT56998.2023.10308067 Nov 2023
- **Improving Reinforcement Learning Agent Training Using Text-Based Guidance: A Study Using Commands in Dravidian Languages**, *3rd Workshop on Speech and Language Technologies for Dravidian Languages*, ACL Anthology, https://aclanthology.org/2023.dravidianlangtech-1.5 Sep 2023
- **Face Mask Detection Using Transfer Learning and TensorRT Optimization**, *ICICC 2023*, Springer, doi: 10.1007/978-981-99-3315-0_63 July 2023

Projects

Indic Verse: Advanced Indic Language LLM System [Hugging Face] Jan 2024 – Apr 2024
Tech Stack: Python, PyTorch, Hugging Face Transformers, LORA
- Architected English-to-Indic translation and transliteration modules and processed over **1M sentences** from **6+ datasets** to develop a training corpus for Indic language models.
- Fine-tuned **3 LLM models** (Gemma 2B, Gemma 7B, LLaMA 3 8B) with PEFT techniques, enhancing performance on various Indic language tasks.