N A Adarsh Pritam

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EDUCATION

Alliance University, Bangalore, India — 2024 — 2026
Master of Science - Data Science — CGPA: 8.2/10

Bangalore University, Bangalore, India — 2021 — 2024
Bachelor of Science - Mathematics and Statistics — CGPA: 6.5/10

OVERVIEW

I am currently a Master's student (2024-26) at Alliance University and a summer Machine Learning Research Intern (2024) at i2CS Research Group, Indian Institute of Information Technology (IIIT) Kottayam, India. My research focus belongs to Machine Learning, Computer Vision, Natural Language Processing, and Generative Models, with applications to Medical Imaging and Clinical Decision Support. I enjoyed working with Dr Kala S (internship supervisor) under whom I carried out supervised research work focusing on the multi-modal alignment of Vision Language Models for Plant Disease Detection using Deep Learning. Some of my previous work and projects also determine my interest in Deep Learning for Computer Vision and Explainable AI. Currently, at Alliance University, I am studying Deep Learning, Classical ML, ML Techniques for Image Processing, and Data Science taught by Prof. Mihir Dash, Dr. Vivek Mishra, Dr. Raj Dash, and Prof. Jeba Shiney. Conversely, I am also conducting research in the field of generative AI for healthcare applications supervised by Prof Jeba Shiney, as a part of my master's thesis. Moreover, I am a part of the Data Drishti (the data science club) at Alliance University as well. I finished my BSc in Mathematics and Statistics (Bachelor's 2021-2024) degree from Bangalore University, Bangalore in the silicon valley of India. I belong to the south part of India, from a city called Bangalore which lies in southeast Karnataka.

RESEARCH EXPERIENCE

Alliance University, Bangalore — August 2025 – Present
Supervisor: Dr. Jeba Shiney
Project: ***SkinGenBench: Benchmarking Generative Models for Dermatological Image Classification***
(Master's thesis)

- Developing a PyTorch-based framework to investigate the role of generative augmentation and preprocessing in addressing class imbalance in dermatological image classification.
- Leveraging cutting-edge generative models to synthesize realistic medical images for underrepresented categories.
- Establishing a systematic evaluation setup to compare augmentation strategies across multiple dimensions.
- Assessing improvements in classifier performance and synthetic image quality through quantitative metrics, with a focus on enhancing detection in low-data classes.

Summer Machine Learning Research Intern
@ Intelligent Integrated Circuits and Systems (i2CS) Research Group,
Indian Institute of Information Technology (IIIT), Kottayam, India — May 2025 – September 2025
Supervisor: Dr. Kala S
Project: ***Study and Analysis of Visual Language Models for Plant Disease Detection***
(details omitted due to ongoing publication)

- Developed a custom VLM by integrating a fine-tuned CLIP ViT-Large encoder with a 7B InternLM2 LLM.
- Designed and trained a novel vision-language projection architecture to reduce hallucinations and improve factual grounding.
- Applied efficient training techniques (8-bit quantization, gradient accumulation, data augmentation) for scalability.
- Contributed to the research manuscript by writing the literature review, architectural details, and performance analysis.

Alliance University, Bangalore — February 2025 – May 2025
Supervisor: Dr. Asha Kurian
Project: ***An End-to-End Sign Language Translation Pipeline from Static Gestures to English Using T5***

- Authored and presented a peer-reviewed paper accepted at a prestigious IEEE conference, communicating original findings to the global research community.

- Designed and implemented a modular pipeline that translates Indian Sign Language (ISL) gestures into fluent English sentences.
- Built a vision-based model to classify video gestures into corresponding characters and words with high accuracy.
- Fine-tuned a T5-FLAN-small transformer model for gloss-to-English translation, achieving significant BLEU score improvements over baselines.
- Collected and preprocessed a custom dataset for sign language translation tasks, addressing low-resource constraints in the domain.

PUBLICATIONS

1. **N. A. Adarsh Pritam** and A. Kurian, "An End-to-End Sign Language Translation Pipeline from Static Gestures to English Using T5," 2025 International Conference on Emerging Technologies in Computing and Communication (ETCC), Bangalore, India, 2025, pp. 1-6, doi: 10.1109/ETCC65847.2025.11108641.

INTERNSHIP EXPERIENCE

Summer Machine Learning Research Intern
@ Intelligent Integrated Circuits and Systems (i2CS) Research Group,
Indian Institute of Information Technology (IIIT), Kottayam, India May 2025 – September 2025
Supervisor: Dr. Kala S
Project: ***Study and Analysis of Visual Language Models for Plant Disease Detection***
(details omitted due to ongoing publication)

- Developed a custom VLM by integrating a fine-tuned CLIP ViT-Large encoder with a 7B InternLM2 LLM.
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- Contributed to the research manuscript by writing the literature review, architectural details, and performance analysis.

PROJECTS

Built-from-Scratch Personalized Conversational-AI to Mimic Communication Style via Personal Chat Logs — GitHub 2025
(Ongoing)

- Designed an end-to-end custom language model to emulate individual communication styles using personal chat logs.
- Implemented data extraction, cleaning, and a BPE tokenizer, followed by training a decoder-only transformer from scratch.
- Applied QLoRA-based fine-tuning for parameter-efficient adaptation, demonstrating potential for personalized dialogue systems and low-resource model customization.

Reimplemented a LLaMA-style Transformer from Scratch in PyTorch — GitHub 2025

- Developed an educational reimplementation of a modern LLaMA-inspired large language model, constructed entirely from first principles in PyTorch.
- Implemented and analyzed key components of transformer architecture, including multi-head attention, grouped-query attention (GQA), and rotary positional embeddings (RoPE).

SKILLS

- **Programming Languages:** Python (Advanced), R, SQL, Java
- **Libraries & Frameworks:** Transformers, PyTorch, OpenCV, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn
- **Cloud & Data:** AWS, Apache Kafka, BigQuery, PostgreSQL
- **Data Visualization:** Power BI, Tableau, Jupyter Notebook

CERTIFICATIONS

AWS Certified AI Practitioner, *Amazon Web Services, 2024*
Mathematics for Machine Learning and Data Science, *DeepLearning.AI, 2024*
Google Data Business Intelligence Specialization, *Google, 2023*
Google Data Analytics Specialization, *Google, 2023*

AWARDS & ACHIEVEMENTS

- Project Lead, Academic Review Paper

- Two-Time Winner, Battle of the Bands Competition
- High Achiever's Award, Distinction in Grade 4 Rock Guitar Examination

REFERENCES

1. Mr. Mihir Dash (mihir@alliance.edu.in), Associate Professor and Interim Associate Dean at Alliance University, India
2. Dr. Jeba Shiney (jeba.shiney@alliance.edu.in), Professor at Alliance University, India
3. Dr. Vivek Mishra (vivek.mishra@alliance.edu.in), Associate Professor at Alliance University, India
4. Dr. Asha Kurian (asha.kurian@alliance.edu.in), Assistant Professor at Alliance University, India