

Pranav Unnikrishnan

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Personal Profile

- Machine learning engineer with strong proficiency in coding, math, and understanding research papers.
- Ability to work remote, independently, and with diverse teams in flexible environments.
- Seeking a role in the field of data science and machine learning.

Education

Master of Science in Data Science - University of Colorado Boulder (06/2026), GPA – 3.967/4

Boulder, CO

B.tech in Computer Science (Artificial Intelligence) - Amrita University (06/2024), GPA – 8.42/10

Coimbatore, India

Technical Skills

- **Languages:** Python, C, MySQL, MongoDB, Scala, HTML, JavaScript
- **Domains:** Algorithms, Data structures, Machine learning, Computer Vision, Natural Language Processing, Generative AI, Reinforcement learning, Data driven modelling
- **Tools:** MATLAB, Simulink, AWS, Apache Spark, ROS, Unix based systems, Windows

Experience

Machine Learning Intern - Hyperworks Imaging, Bengaluru, India

Mar 2024 – Jul 2024

- Developed automated system for digitizing raster well log images, increasing efficiency and accuracy of information extraction for machine learning models. Implemented Mask R-CNN model from Detectron2 library, successfully extracting multiple segments from well log images and storing results in JSON format while achieving 80% precision.
- Engineered innovative solution using GANs to remove gridlines and transformer model to map curves, enabling precise digital representation of well log data. Designed and executed OCR-based system with clustering and post-processing techniques to accurately extract depth information from well logs.
- Validated digitization results against corresponding LAS files, ensuring high accuracy and reliability of extracted information for downstream analysis.

Machine Learning Intern - AI India Innovation Center, Pune, India

Oct 2023 – Jan 2024

- Fine-tuned open-source LLMs to answer high school math questions by generating synthetic data according to client's needs and achieved model accuracy of 70%.
- Implemented quantization techniques to optimize LLM performance, reducing model size while maintaining accuracy. Developed and deployed LLM-based solution with frontend integration, creating a functional application for end-users.
- Engineered image augmentation pipeline, incorporating advanced techniques such as image in-painting and image-to-image translation. Designed and implemented OCR system for passport information extraction, automating information parsing and improving efficiency.

Projects

- **ST RAG: Summarization Tree Retrieval Augmented Generation** - The project aimed to improve retrieval-augmented language models utilizing a tree-based approach for retrieval. Results showed STRAG outperformed traditional methods on several metrics (around 10% improvement in retrieval and 5% in answering using llama models), demonstrating strong retrieval of relevant and comprehensive information, though with some room for improvement in filtering irrelevant data.
- **AI based Automated Checkout System for Supermarkets** - Objective aimed to create an automated checkout system and recommendation system using spark to handle large scale data. Role included creating steaming pipeline and storage with MongoDB. Project was successfully completed and deployed in embedded systems.
- **Classification of Hyper-partisan News using BERT-Based Techniques** - Researched hyper-partisan news detection with NLP techniques like chunk analysis, summarization, and stride chunking with transformer models. Achieved best results for RoBERTa with chunk analysis, reaching 95.5% accuracy, 95.3% precision, and 95.5% F1 score.

Research Publications

- [Unleashing the Power of Dynamic Mode Decomposition and Deep Learning for Rainfall Prediction in North-East India](#) - (ICCAIML-2024)
- [Comparative Analysis on Speech Driven Gesture Generation](#) - (AKIP-2023)
- [Face Mask Detection using Transfer Learning and TensorRT Optimization](#) - (ICICC-2023)