

SANJAY RAJU

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EDUCATION

Stevens Institute of Technology

Master's, Data Science

September 2023 - May 2025

GPA: 3.8

Amrita Vishwa Vidyapeetham

Bachelor's, Artificial Intelligence

June 2019 - August 2023

GPA: 8.8

PROFESSIONAL EXPERIENCE

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AI Intern

Bangalore, KA, India

January 2023 - June 2023

- Worked with a team of 30 members to develop a multimillion-dollar project that was based on video processing and interpretation.
- Created a unified pipeline using C++ for processing multiple machine learning models.
- Conducted performance analysis and executed extensive testing on multiple iterations of the same model. Enhanced the pipeline performance by implementing CUDA acceleration.
- Built a multithreaded program that seamlessly integrates all the mentioned components, enabling efficient processing of multiple inputs simultaneously.

PROJECTS & OUTSIDE EXPERIENCE

Lunar Crater Detection and Depth Analysis

Leader

May 2022 - August 2023

- Utilized images from Chandrayaan-2 satellite to map out craters on the lunar surface to ensure precision in landing rovers.
- Created a dataset using web scraping and used Google Colab Pro to handle the huge dataset size; analyzed images obtained from the Optical High-Resolution Camera on Chandrayaan-2 satellite, accessed from the ISRO website.
- Manually labelled 900+ images of craters and trained a R-CNN and YoloV5 model for object recognition.

Driver Drowsiness Detection

Leader

Remote

January 2022 - May 2022

- Designed a CNN architecture to detect drowsy eyes in drivers and to score them accordingly.
- Processed the cropped image of the driver's eyes to find the level of drowsiness using different models like InceptionV3, Xception, VGG and ResNet.
- Concluded that the VGG model had the highest accuracy of 87% in detecting and scoring drowsiness.
- [Link to project](#)

Image Captioning System

Leader

Remote

January 2022 - May 2022

- Designed a multi-model system to process a given image and output captions describing it.
- Processed the data from Flickr30k dataset– both image and caption vectors – by passing them through LSTM layer and Feed Forward Neural Network.
- Recorded an accuracy of 78% in recognizing images and providing appropriate captions.
- [Link to project](#)

Data Analysis to understand mental health in tech industry

Leader

New York, NY, USA

September 2023 - January 2024

- Conducted exploratory data analysis on a survey regarding mental health in tech industry.
- Cleaned missing data using mean and distribution of existing values for categorical variables.
- Utilized descriptive statistics, Bayesian inference, Joint Distribution Analysis, and Factor Analysis to recognize patterns in the data.
- Drew significant conclusions that directly correlated workplace attitude and mental health experiences.
- Suggested initiatives that companies could take to boost productivity.

ML in Video Processing and Interpretation

AI Engineer Intern

Bangalore, KA, India

January 2023 - July 2023

- Worked with a team of 30 members to develop a multimillion-dollar project that was based on video processing and interpretation.
- Created a unified pipeline using C++ for processing multiple machine learning models.
- Conducted performance analysis and executed extensive testing on multiple iterations of the same model.

- Enhanced the pipeline performance by implementing CUDA acceleration.
- Built a multithreaded program that seamlessly integrates all the mentioned components, enabling efficient processing of multiple inputs simultaneously.

Sudoku Solver

Remote

Leader

September 2021 - December 2021

- Developed a web-based application to solve Sudoku puzzles by capturing its image and giving a solved output.
- Utilized image processing concepts and OpenCV to capture Sudoku puzzle image; Used Jupyter Notebook for generalized preprocessing of the cells and collaborated with the other team members using Git.
- Demonstrated that the model was able to recognize and solve Sudoku puzzles with an accuracy of 80%.
- [Link to project](#)

SKILLS

Skills: Excel/Numbers/Sheets, Business Analytics, Python, MATLAB, Git, C/C++, Computer Vision, CUDA, Data Analysis, Data Science, Data Structures & Algorithms, Financial analysis, MongoDB, MySQL, Natural Language Processing (NLP), NoSQL, OpenCV, Pandas, Power BI, Python NLTK, Pytorch, RDBMS, Tableau, Java

Languages: Hindi, Malayalam, English

PUBLICATIONS

- **Sanjay Raju**, *Deep Learning Techniques for Crater Detection on Lunar Surface Images from Chandrayaan-2 Satellite*, Journal of the Indian Society of Remote Sensing, Vol. 52, pp. 1717–1728, 2024. <https://doi.org/10.1007/s12524-024-01909-y>