RUBAN KUMAR B

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EDUCATION

Chennai Institute of Technology, Chennai, TN May 2025

Bachelor of Technology in Artificial Intelligence and Data Science
CGPA – 8.73 (Up to V semester)

INTERNSHIP

AIROS SPACE R&D, Chennai , TN (09/2022 – 09/2023)

Role - AI Engineer

- Developed an object detection model for detection and classification of small objects that are less than 3 cm in size from an altitude of above 20 m.
- Engineered a model for detecting cracks and other defects in large solar farms with above 90 % accuracy. This reduces the labor work needed to monitor and maintain large farms by 80%.
- Pioneered a groundbreaking technique to precisely ascertain the geographical coordinates of ground objects within UAV captured images, achieving accuracy of less than 1 meter.

SKILLS

- **PROGRAMMING LANGUAGES:** Python, Java.
- **DATA ANALYSIS:** Numpy, pandas, Matplotlib, Seaborn, Sci-kit learn.
- **COMPUTER VISION:** Object Detection, Object Classification, Object Tracking, YoloV5
- **FULLSTACK FRAMEWORKS:** React Js, Tailwind CSS, Flask, MySQL
- **TOOLS:** Microsoft Excel, Power BI, RoboFlow
- **PROFESSIONAL SKILLS:** Team Work, Adaptability, Analytical thinking, Drive and initiative

PROJECTS

RUNWAY OBJECT DETECTION

- Developed an object detection model using UAVs operating at an altitude of 20m to identify small foreign object debris on airport runways and other operating surfaces. The model is designed to detect debris with high accuracy, minimizing risks.
- The algorithm provides detailed information about the type of debris found, along with its exact latitude and longitude coordinates, enabling swift removal and reducing the chances of runway hazards.
- This project enhances airport safety by automating the debris detection process, significantly reducing the need for manual inspections. As a result, it contributes to safer and more efficient airport operations.
  Tech Stack: YOLOv5, RoboFlow, OpenCV, PyTorch.

FACE RECOGNITION SYSTEM

- Spearheaded the development of an innovative attendance management application integrating facial recognition technology, ensuring seamless and accurate attendance tracking for users.
- Implemented automated features for marking attendance and recording in-time and out-time data, streamlining administrative processes and enhancing efficiency.
- Enhanced the accuracy of facial recognition to achieve over 95% correct identification rates, reducing the likelihood of errors in attendance tracking and ensuring data reliability for administrators.
  Tech Stack – Face-recognition, DeepFace, Yolov5, React**,** Microsoft Excel

GEOLOCATION EXTRACTION FROM AERIAL IMAGES

- Developed a mathematical algorithm to extract accurate latitude and longitude coordinates of objects in aerial images, with a focus on mapping image coordinates to real-world locations.
- The algorithm computes the distance between two objects in an image and maps these distances to geographic coordinates, ensuring precision in determining real-world locations.
- It provides vital information for various applications like mapping, surveying and UAV-based object detection.
  Tech Stack – Python, OpenCV, NumPy, Haversine.

ACHIEVEMENTS

- Authored a research paper on the application of YOLOv5 for small object detection, published in IEEE Explore, showcasing expertise in computer vision and object detection techniques.
- Published a research paper on “Big Data analysis Effects on Supply Chain Management” in Journal of the Asiatic Society of Mumbai.
- Progressed to Phase 2 of the prestigious "Mehar Baba" competition, a highly competitive event conducted at the Lucknow Airbase Station by the Indian Air Force.