

# Vaishnavi Varanasi

B.Tech - DS&AI

## Objective

Aspiring data scientist with a strong foundation in machine learning and data analysis, seeking a full-time or internship role to apply AI expertise and problem-solving skills. Passionate about developing innovative solutions, with proven teamwork abilities and hands-on experience from hackathons and real-world projects.

## Experience

### Center for Human Security Studies (CHSS)

#### ML Research Intern

Feb - June 2024

- Developed a model to automatically detect contraband using X-ray scanners at shipping ports, significantly reducing the time required for manual inspections,
- Analyzed and annotated a diverse dataset and applied data augmentation techniques to enhance model accuracy and robustness, monitor real-time contraband items.
- Achieved a significant reduction in the time required for manual inspections, improving overall operational efficiency, enhanced security with precise Object recognition.

## Academic Projects

### Customer churn prediction using Feature selection

Oct - Nov 2023

- Developed a churn prediction model using machine learning algorithms, optimizing for accuracy through feature selection.
- Applied MRMR (Minimum Redundancy Maximum Relevance) and Relief feature selection methods to identify key predictive features.
- Tech Stack:** Machine Learning Algorithms, MRMR, Relief, Hyperparameter Tuning, Data Visualisation.

### Surgical Tool Detection and Tracking

Oct - Nov 2024

- Monitors real-time movement of surgical tools and classifies them.
- Developed a surgical tool detection, counting, and tracking system using YOLOV10 (n,l) and YOLO V11 (n, s, m) models, achieving the highest mAP50 of 0.9818 with YOLOV11m and localises the tool.
- Enhanced tool detection under various lighting conditions, achieving top recall of 0.9686 with YOLO V10l and mAP50-95 of 0.7640 with YOLO V11s; implemented tool counting using Deep SORT and tracking using ByteTrack with trained model.
- Tech Stack:** PyTorch, OpenCv, Object Detection, Object Tracking, Tesla T4 GPU

### Intrusion Detection System for UAV

- Developed a tree-based ensemble model to detect Replay, Evil Twin, and FDI attacks in drone swarms, handling class imbalance through balancing techniques.
- Processed raw drone swarm data into a structured format for model training and analysis, incorporating data visualization and analysis tools.
- Tech Stack:** Machine Learning, Ensemble Models, Python, Data Analysis, Data Visualization, PCA, Data Balancing Techniques

## Academic Achievements

- Secured **1st rank** in R1 Code fiesta - conducted by Rungta College of Engineering, Chhattisgarh
- Published Conference paper in IEEE - EcoSprout: Machine Learning - Powered Smart Sprinkler System

## Certifications

- Digital Skills : Artificial Intelligence, Accenture Aug 2024
- Data Analysis with Python, Coursera Apr 2023
- Data Visualization with Python, Coursera Apr 2023
- Databases and SQL with for Data Science with python, Coursera Apr 2023



## Contact

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<https://github.com/Vaishnavi1429>

## Academics

- Woxsen University | Hyderabad**  
2021 - 2025| B.Tech: DSAI  
GPA: 2.75 / 4.0
- Sri Chaithanya Junior College | Hyderabad**  
2019 - 2021 |Intermediate  
Percentage: 86.2%
- Prachin Global School | Hyderabad**  
2019 | Percentage: 71%

## Technical Skills

- Python
- Data Science
- Data Analysis
- Data Visualisation
- SQL
- Machine Learning
- Deep Learning
- Computer Vision
- Object Detection and Segmentation

## Tools

- Numpy
- Pandas
- keras
- pytorch