Asang Triratna Ingle

📞 +91-7756884920 | 📧 asangingle07@gmail.com | 🔗 LinkedIn | 📁 GitHub

Profile Summary

Highly motivated Machine Learning Engineer with hands-on experience in deep learning, computer vision, and real-time AI systems. Adept in using advanced CNN architectures like YOLOv8, U-Net, and custom DWT-CNNs for diverse domains including surveillance, healthcare, and fraud detection. Skilled in Python, TensorFlow, OpenCV, and data-centric ML techniques. Demonstrates consistent performance in solving real-world problems with end-to-end ML pipelines, from data preprocessing to deployment and monitoring.

Education

B.Tech in Electronics and Communication Engineering
Indian Institute of Information Technology, Nagpur
Nov 2022 – Jun 2026

Projects

1. Real-Time Vehicle Speed Monitoring & License Plate Detection

- Built a real-time system to detect overspeeding vehicles using **YOLOv8** and **SORT** tracking.

- Defined two virtual lines in the video to estimate speed based on object traversal time.

- Trained a CNN on the **EMNIST dataset** to recognize license plate characters with 62-class classification.

- Performed character segmentation, grayscale preprocessing, resizing, and model prediction.

- Sent real-time SMS alerts via **Twilio API** when over-speeding events were detected.

- **Technologies Used:** YOLOv8, OpenCV, TensorFlow, Keras, EMNIST, Twilio

2. Malaria Detection with Custom DWT-CNN Architecture

- Designed a **custom CNN** incorporating **Discrete Wavelet Transform (DWT)** as custom Keras layers.

- Used DWT to extract multi-resolution features and reduce spatial dimensions effectively.

- Performed robust augmentation and regularization (dropout, batch norm, early stopping).

- Achieved **96.14% accuracy**, **F1-score: 0.9614**, **MCC: 0.9229**.

- Visualized training metrics and confusion matrix with Matplotlib.

- **Technologies Used:** TensorFlow, Keras, OpenCV, Colab, Custom Dataset, DWT

3. Financial Fraud Detection using Random Forest & SMOTE

- Developed a fraud detection model on a financial dataset with over **12 million** records.

- Addressed class imbalance using **SMOTE**, balancing fraudulent and non-fraudulent records.

- Achieved outstanding model performance:

    - **Accuracy:** 99.95%, **F1-score:** 0.9995, **MCC:** 0.9990

- Visualized confusion matrix and model performance using Scikit-learn and Matplotlib.

- **Technologies Used:** Pandas, Scikit-learn, SMOTE, RandomForest, Matplotlib

Technical Skills

Languages: Python, Embedded C
Libraries/Frameworks: TensorFlow, Keras, OpenCV, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Flask
Deep Learning: CNNs, RNNs, ANN, YOLO, U-Net, DWT, Custom Layers
ML Techniques: Classification, Object Detection, Model Evaluation, Feature Engineering
Tools & Platforms: Google Colab, Jupyter, Kaggle, GitHub

Links to Work

- [Vehicle Overspeed Detection (YOLO + SORT)](#)

- [Malaria Detection using DWT CNN](#)

- [Calorie Burn Predictor (Flask + XGBoost)](#)

- [Dog-Cat Classification with U-Net Denoising](#)