

# Asang Triratna Ingle

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## About Me

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Passionate Machine Learning and Deep Learning enthusiast with experience in computer vision, predictive analytics, and AI-driven automation. Proficient in CNN architectures (YOLO, U-Net, ResNet), traditional ML models and optimization techniques. Skilled in TensorFlow, OpenCV, and Flask, with hands-on projects in image processing, classification, and real-time monitoring. Excited to apply AI for impactful solutions.

## Education

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**Indian Institute of Information Technology, Nagpur**, Maharashtra, India

B.Tech in Electronics and Communication Engineering

Nov 2022 – Jun 2026

## Projects

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### Deep Learning for Traffic Speed Monitoring

[GitHub Link](#)

- Built a real-time traffic monitoring system using **YOLOv8** for vehicle detection and **SORT** for ID-based tracking across high-resolution video.
- Applied a **custom region mask** and dual-line logic to calculate vehicle speed (km/h) using timestamp differences and fixed real-world distance
- Enabled **automatic logging and saving** of overspeeding vehicle images with ID, speed, and timestamp for documentation and alerting.
- Utilized Python, OpenCV and Tensorflow to process video streams with scalable modular and annotated overlays.

### Narrative Structure Detection Web App (NLP Project)

[GitHub Link](#)

- **Developed an end-to-end NLP** system to classify narrative text into plot roles (setup, conflict, resolution, none) and genres (fairy tale, news article) using RandomForestClassifier and XGBoost.
- **Preprocessed and combined two Hugging Face datasets**, applied text cleaning, stemming, and TF-IDF feature extraction to train and evaluate separate classification models.
- **Created a multilingual Streamlit web app** with real-time predictions, enabling both English and Hindi input through MarianMT-based translation and segment-level classification.
- **Improved model usability and reproducibility** and deploying via a user-friendly interface.

### Calorie Burn Prediction Using XGBoost and Flask

[GitHub Link](#)

- Developed a Flask-based web app for real-time calorie burn prediction using XGBoost regression.
- Trained and optimized a machine learning model on exercise and calorie datasets with feature engineering.
- Integrated model persistence using Pickle, enabling efficient loading and inference.
- Implemented a user-friendly interface for input handling, prediction display, and seamless deployment.

## Research Project

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### Malaria Detection using CNN and Discrete Wavelet Transform (DWT)

[GitHub Link](#)

Collaborated with Dr.Nikhil Dengre | IIIT Nagpur

- Developed a hybrid CNN-DWT model to classify malaria-infected and uninfected cell images, achieving 96.14% test accuracy, F1 score of 0.9614, and MCC of 0.9229.
- Applied Discrete Wavelet Transform for multi-resolution image analysis to improve feature extraction before CNN processing.
- Implemented the model using TensorFlow and Keras, with training on Google Colab GPU; utilized callbacks like EarlyStopping and TestAccuracyCallback.

## Technical Skills

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- **Languages:** Python, Embedded C
- **ML Frameworks:** Pandas, Numpy, Scikit-learn, Keras, TensorFlow, OpenCV
- **Data Science Tools:** NumPy, Pandas, Matplotlib, Scikit-learn, Seaborn
- **Deep Learning Expertise:** Computer Vision (OpenCV, YOLO), Natural Language Processing (NLP), Neural Networks (ANN, CNN, RNN)