AWANTIKA SRIVASTAVA

AI / Computer Vision Engineer | Deep Learning | Real-Time Vision System

+91-8920482037 | sawantika81@gmail.com | LINKEDIN | Github

PROFILE SUMMARY

AI / Computer Vision Engineer with 2+ years of experience building real-time image and video processing systems for industrial applications. Strong expertise in object detection, bounding box processing, confidence scoring, CNN-based architectures, and low-latency edge inference. Experienced in developing robust vision pipelines aligned with camera and sensor characteristics. Proficient in Python, OpenCV, NumPy, PyTorch, and TensorFlow for production-grade AI systems.

CORE TECHNICAL SKILLS

- **Programming Languages & Tools:** Python, Numpy, Pandas, Matplotlib, Scikitlearn, C++, SQL
- **Statistics & Mathematics:** EDA, Statistical Modeling, Hypothesis Testing, Probability, Linear Optimization, Trend Analysis.
- **Machine Learning:** Supervised & Unsupervised Learning, Regression, Classification, Clustering, Random Forest, Decision Trees, SVM, KNN, K-Means, XGBoost, Hyperparameter Tuning, Feature Engineering.
- **Deep Learning:** CNN, RNN, LSTM, Transformers (BERT), Transfer Learning, Model Fine-tuning, RAG, LLMs
- **Deep Learning Frameworks:** PyTorch, TensorFlow, TensorFlow Lite (Edge Deployment)
- **Computer Vision**: Image Classification & Preprocessing, Object detection (YOLO, SSD, MobileNet, ResNet), Image & Video Processing Pipeline, Bounding Boxes & Confidence Scoring, Geometric Transformation, OpenCV
- **Model Optimization & Performance:** Model Quantization, Low-Latency Inference, Edge Deployment, Accuracy vs Latency, Trade-offs
- **NLP**: Text preprocessing, Tokenization, Chunking, Transformers, Sentiment Analysis, Semantic Search, Transformer-based models, NLTK, SciPy, Spacy.
- **Cloud & MLOps:** Flask, Git, GitHub, Docker, AWS, EC2

EXPERIENCE

Machine Learning Engineer / Applied AI Engineer | PPS International Pvt. Ltd.   January 2024-Present

- Developed real-time **image and video processing pipelines** for industrial safety monitoring systems.
- Implemented **object detection models (SSD MobileNet, YOLO)** for visual analysis tasks.
- Worked extensively with **bounding boxes, label encoding, and confidence score thresholding**.
- Built complete ML lifecycle including dataset preparation, preprocessing, training, evaluation, and deployment.
- Optimized models using **TensorFlow Lite quantization**, achieving <150 ms inference latency.
- Built continuous camera-based inference systems for real-time video streams.
- Improved robustness and detection accuracy through systematic experimentation and hyperparameter tuning.

PROJECTS

Railway Driver Assistance System (RDAS) | Enterprise ML Project

- **Designed** and deployed a real-time computer vision–based ML system to **detect** unsafe driver behaviors from **continuous video streams**.
- Trained and optimized **CNN-based object detection** model (SSD **MobileNet** architecture) to perform **real-time inference** on video data.
- Implemented **end-to-end ML pipelines** covering data ingestion, **preprocessing**, **model training**, **evaluation**, and **production** inference.
- Achieved **20–25 FPS** real-time processing with **<150** ms inference latency by optimizing models for deployment.
- Built and integrated a **Flask-based web interface** to **visualize** detections and automatically **recorded 30-second** event clips, **reducing** manual review effort.

Amazon Stock Price prediction | Applied ML Project

- Designed real-time surveillance system to detect and track unauthorized objects/persons in restricted zones.
- Implemented **YOLO-based object detection pipeline using OpenCV** for continuous video stream analysis.
- Applied **bounding box filtering and confidence threshold tuning** to reduce false positives.
- Implemented geometric zone mapping and spatial reasoning to detect boundary violations.
- **Optimized** detection workflow using **Non-Max Suppression (NMS)** and **IoU-based** filtering.
- **Evaluated** model **performance** using **precision**, **recall**, and **mAP** metrics.

YouTube Comments Sentiment Analyzer | link -https://youtube-ai-analyzer-ndzqo6r2mepjrtsdjmwaxl.streamlit.app/

- Deployed transformer-based **NLP models** as **production-ready** services with **REST APIs**.
- **Fine-tuned** and served a **DistilBERT**-based **sentiment** classification model for large-scale text inference.
- **Built** and deployed an interactive **streamlit web application** to perform real-time **sentiment analysis** on YouTube comments.
- **Processed** high-volume text **data** with sub-second inference **latency** for real-time sentiment analysis.

CERTIFICATION

- IBM Data Science & AI Certification
- AWS Generative AI with Large Language Models
- OpenCV Computer Vision Certification

EDUCATION

IMS Engineering College, Ghaziabad   September - 2020
Bachelor of Technology