SACHU RETNA S M

Junior AI Engineer | Computer Vision & Robotics

sachuretnasm@gmail.com 8113820058 Trivandrum Sachursm

PROFILE

Applied AI Engineer with hands-on experience in Computer Vision, Deep Learning, and Edge AI. Built and deployed CNN and YOLO-based models for real-world use cases including agriculture, safety, and robotics. Strong in Python, TensorFlow, OpenCV, and edge deployment on ESP32 and Raspberry Pi. Experienced across the full ML lifecycle: data preparation, model training, evaluation, optimization,and real-time inference.

PROFESSIONAL EXPERIENCE

Academic Executive 10/2023 – Present
CYSONET TECHNOLOGIES trivandrum

- Designed and implemented end-to-end AI and Computer Vision projects using CNNs, MobileNet, and YOLOv8.
- Built real-time image classification and object detection systems using OpenCV and TensorFlow.
- Deployed optimized models using TensorFlow Lite for edge devices (ESP32, Raspberry Pi).
- Created and validated datasets, performed data preprocessing, augmentation, and model evaluation.
- Mentored and reviewed production-style ML projects with performance and deployment constraints.

SKILLS

Programming
Python, C

Machine Learning & Deep Learning
- Supervised & Unsupervised Learning
- CNNs, MobileNet, YOLO
- Model training, evaluation, and tuning

Computer Vision
- Image classification, object detection
- OpenCV, MediaPipe
- Real-time camera pipelines

Edge AI & Deployment
- TensorFlow Lite
- ESP32, ESP8266, Raspberry Pi
- Real-time inference on edge devices

Tools
- Git, GitHub
- VS Code, Arduino IDE
- NumPy, Pandas, Matplotlib, Scikit-learn

CERTIFICATES

DATA SCIENCE AND AI
KELTRON KNOWEDGE CENTER

INTERNSHIP
KERALA AUTOMOBILES LIMITED

AUTOCAD MECHANICAL
GMDS

PROJECTS

Wheat Leaf Disease Detection – YOLOv8
- Trained YOLOv8n model to detect multiple wheat leaf diseases
- Annotated dataset using MakeSense.ai
- Performed real-time inference using OpenCV
- Validated model performance using visual inspection of detections and confidence scores on unseen images
- Achieved mAP@0.5 of 0.78 on validation set
- Use case: early crop disease detection for agriculture automation

Face Mask Detection – MobileNet
- Built MobileNet-based CNN for face mask classification
- Dataset size: ~3,800 images (masked / unmasked)
- Achieved ~95% validation accuracy
- Converted model to TensorFlow Lite for optimized inference
- Deployed real-time detection using webcam and OpenCV

Hand Gesture Controlled Robot
- Developed hand gesture recognition system using MediaPipe and OpenCV
- Mapped gestures to robotic movements using ESP32
- Implemented real-time control pipeline from camera to motor drivers
- Integrated AI-based vision with embedded motor control

EDUCATION

B.TECH 2017 – 2021
College of Engineering Muttathara TRIVANDRUM
MECHANICAL ENGINEERING

LANGUAGES

ENGLISH	●●●●●	MALAYALAM	●●●●●
TAMIL	●●○○○	HINDI	●●●○○

AI PIPELINE & DEPLOYMENT EXPERIENCE

- Dataset creation and annotation
- Data preprocessing and augmentation
- Model training and evaluation
- Model optimization and compression
- Conversion to TensorFlow Lite / ONNX
- Edge deployment and real-time inference

GITHUB

GitHub: https://github.com/Sachursm