GOPICHAND GURUVIGALLA

Computer Vision AI & ML Engineer

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ABOUT ME

AI & ML Engineer specializing in computer vision perception systems for real-world and real-time environments. Experienced in developing and deploying deep learning models for object detection and segmentation, building scalable ML pipelines, and designing data labeling and monitoring workflows. Strong applied engineering background with exposure to transformer-based perception models, SAM3, and edge AI deployment.

WORK EXPERIENCE

Bharat Electronics Limited Jul,2024 - Present

Trainee Engineer

- Built real-time perception pipelines using RTSP camera streams for object detection and segmentation.
- Developed deep learning perception models for object detection and segmentation using YOLO and transformer-based architectures
- Trained and optimized YOLO and transformer-based detection models using PyTorch.
- Applied SAM3 for segmentation and detection-assisted labeling to accelerate dataset creation.
- Implemented dataset augmentation, versioning, and performance benchmarking pipelines.
- Designed labeling workflows using LabelImg and X-AnyLabeling with augmentation.
- Evaluated models using mAP, precision, recall, and latency benchmarks.
- Assessed CNN and transformer-based detection models for real-world deployment.
- Deployed perception systems into production and edge environments using Dockerized services.
- Containerized and deployed AI inference pipelines on NVIDIA Jetson and x86 GPU systems.

PROJECTS: REAL-TIME OBJECT DETECTION AND EDGE AI DEPLOYMENT SYSTEM

Tech Stack: PyTorch, YOLO (v5/v8/v11), Transformers, SAM3, OpenCV, Docker, NVIDIA Jetson, Python

- Built a real-time object detection pipeline using YOLO models on live RTSP camera streams.
- Trained and optimized YOLO and transformer-based detection models using PyTorch.Performed containerization of the complete AI system for deployment across environments.
- Deployed the application on NVIDIA Jetson (ARM) and x86 GPU platforms using multi-architecture builds.

TECHNICAL SKILLS

Computer Vision & Perception: Object Detection, Segmentation, Real-Time Perception, YOLOv5/YOLOv8/YOLOv11, Detection Transformers, SAM3, OpenCV

Pipelines & Systems: RTSP Video Streams, Real-Time Inference Pipelines, Frame Extraction.

ML Workflow: Dataset Strategy, Labeling (LabelImg, X-AnyLabeling), SAM3-Assisted Annotation, Data Augmentation, Hyperparameter Tuning, Model Evaluation (mAP, Precision, Recall)

Deployment & MLOps: Docker, Docker Compose, Multi-Architecture Builds, Production Deployment.

Platforms: NVIDIA GPU, Jetson Nano, Orin

Programming Languages: Python, C++

EDUCATION

Bachelor of Technology (CSE) 2023

Rajeev Gandhi Memorial College of Engineering and Technology 8.4 CGPA