Roubish Kumar Pushkar

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Professional Summary

AI Engineer — 3+ Years Experience Expert in Machine Learning, Deep Learning, and Data Science. Proficient in Python, software development, OOP, and functional programming. Passionate about AI innovation and leading end-to-end AI solutions in logistics, security, and transportation.

Skills

Python, TensorFlow, PyTorch, OCR, CNNs, ANN, Object Detection, Semantic Segmentation, Image Classification, Deep Learning, Software Development, NVIDIA Jetson, Edge AI, DeepStream SDK, OpenCV, YOLO, SSD, Computer Vision, MySQL/NoSQL, GCP, GCF, AWS, FFmpeg, GitHub, Docker.

Experience

Assert AI   *Bengaluru, India*
Responsibilities   *September 2021 – Present*
Deployment of Large-Scale Computer Vision Projects (Ongoing).

- Code Development: Design and implement scalable computer vision solutions, collaborating with teams to meet project requirements.
- Model Training Optimization: Select, train, and fine-tune computer vision models (CNNs, YOLO, SSD) for high accuracy and efficiency.
- Software Maintenance: Maintain, debug, and enhance vision-based applications for reliability and adaptability.
- Hardware Debugging: Diagnose and optimize edge devices (NVIDIA Jetson, GPU/CPU, memory, power, connectivity) for stable operations.
- PoC Development: Create and test innovative Proof of Concepts (PoCs) to solve real-world AI and computer vision challenges.

Projects

Automatic Number Plate Recognition Project

- Designed and developed an end-to-end ANPR system by integrating PaddleOCR with DeepStream for real-time license plate detection.
- Optimized accuracy and reduced processing time, ensuring efficient recognition in various lighting and weather conditions.
- Conducted comprehensive testing and debugging for seamless deployment in real-world environments.

Turnaround Time Project - Person Waiting Time Measurement

- Implemented video analytics using DeepStream Python to measure customer waiting and service times at retail stores.
- Provided data-driven insights to optimize workflow efficiency and enhance customer experience.
- Designed a scalable and automated monitoring system for continuous improvement in service management.

Real-Time Warehouse Surveillance Monitoring

- Developed custom AI models to monitor warehouse operations, including shutter status tracking and sack counting for logistics efficiency.
- Implemented vehicle entry monitoring, person intrusion detection (especially at night), and guard attendance tracking to enhance warehouse security.
- Integrated real-time alerts and visual dashboards to provide actionable insights for warehouse management.

Industrial safety and surveillance

- Designed AI-powered safety solutions to detect helmet and vest violations, hand glove violations, forklift overspeeding, and illegal vehicle parking.
- Developed fire and smoke detection algorithms for early hazard identification and prevention.
- Deployed edge-based models on NVIDIA Jetson devices for real-time processing, ensuring workplace compliance and accident prevention.

Padecco India – Mumbai Metro AI Surveillance

Padecco India secured a contract for Mumbai Metro's surveillance project, covering 80 metro stations with 15-20 cameras per station (FOB, Platform, Ticketing Area, Entry-Exit). The project involves processing 7 days of video data per camera to generate analytical reports for the Padecco team.

Use Cases Implementation:

- Male-Female Detection – Deployed custom YOLOv8 model for gender classification on FOB cameras.
- Head Count Detection – Used custom YOLOv8 model for real-time crowd estimation on platform cameras.
- Queue Length Estimation – Tracked queue lengths at ticketing areas to analyze congestion.
- Peak Hour ROI Analysis – Analyzed crowd density trends, peak-hour statistics, and male-to-female ratio in different regions of interest (ROIs) over time.
- Optimized Processing Pipeline – Integrated DeepStream Python pipeline for high-speed inference and efficiency.
- Hardware Acceleration – Used NVIDIA A6000, RTX 4090, and RTX 3090 for scalable batch inference.
- Automated Workflow – Developed Python Shell scripts for complete automation of video processing.
- Data Storage Post-Processing – Stored 7 days of inference results in Excel sheets, followed by analytical reporting.
- Video Format Standardization – Used FFmpeg MEncoder to convert .DAT, .AVI, .H264 to MP4 for seamless processing.
- Team Collaboration – Worked in an 8-member tech team, supported by 2 additional team members.

    Technologies Used :-Deepstream-6.1.1/6.2, Yolov5 crowd human model, Yolov8s male/female model, Opencv, Linux Scripting, Gstreamer, Pandas, Nvidia.

Educational Qualifications

* **MCA**   *Jun 2017 - Mar 2021*
  REVA UNIVERSITY, Bengaluru