PROFILE

Experienced Python Developer with over **4 years** in delivering solutions across **machine learning**, **computer vision**, and **web development**. Strong background in building real-time, data-driven applications for domains such as video analytics, biometric systems, and interactive web platforms. Capable of designing and deploying robust backend systems, implementing AI models, and integrating intelligent features into scalable applications.

CONTACT

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LANGUAGES

Malayalam
English
Tamil
Hindi

SYAMPRASAD

Software Developer

WORK EXPERIENCE

GAMA SECURITY SOLUTION: DUBAI – Python Developer (Video Analytics & ML)
[September 2022] - [May 2025]

NACRE SYSTEMS: PALAKADU – Python Developer (Video Analytics & ML & Web)
[May 2021] – [May 2022]

GRAPESGENIX TECHNICAL SOLUTIONS: THRISSUR – Python Developer (Video Analytics & ML & Web)
[November 2020] – [May 2021]

PROJECTS

Smart Surveillance System on NVIDIA Jetson AGX:

Developed an edge AI-powered real-time video surveillance system on the NVIDIA Jetson AGX platform. Key features include real-time people/vehicle detection using optimized YOLO models, line crossing detection with entry/exit tracking and ID assignment, generation of live heatmaps to visualize high-activity zones, implementation of TensorRT for efficient model deployment and video stream processing, and design for continuous operation on embedded hardware with optimized power consumption.

ANPR (Automatic Number Plate Recognition) With OCR
Proficient in developing and deploying ANPR systems with OCR capabilities, leveraging computer vision and deep learning techniques to accurately and efficiently recognize license plate numbers, contributing to projects aimed at enhancing transportation management and security. from a real-time streaming camera .

Heatmap
Person heatmapping, often referred to as people heatmapping or human heatmapping, is a technique used to visualize the behavior, movements, and interactions of individuals within a specific space or context.

Restreamer
Restreamer technology to efficiently distribute live video content across multiple streaming platforms simultaneously, optimizing audience reach and engagement.

Nail Segmentation using YOLO
Implemented YOLO-based segmentation to detect and isolate fingernails for use in virtual nail try-on applications in the beauty tech domain.

SKILLS

Programming Languages:

- Python
- C
- C++
- JavaScript
- Java
- PHP
- HTML

Frameworks/Libraries:

- Django
- Flask
- OpenCV
- YOLO (including YOLOv8)
- TensorFlow
- NLTK
- SpaCy
- TextBlob
- FAISS
- face_recognition
- FFMPEG
- Scikit-learn
- NumPy
- Pandas
- Matplotlib
- Multiprocessing
- Threading
- Subprocess
- Schedule
- Keras
- PyTorch
- ONNX Runtime

Machine Learning/AI:

- Face Recognition
- Face Search (FAISS-based)
- Object Detection (YOLO)
- Image Segmentation
- Computer Vision
- Deep Learning
- Facial Feature Extraction
- Embedding Techniques
- Image Processing
- Real-Time Inference
- Virtual Try-On Systems
- Real-Time Inference
- Custom Model Training
- Pose Estimation (YOLOv8)
- Real-Time Inference
- Anomaly Detection (fall, fence breach)
- Transfer Learning

Facial Emotion / Expression Detection
The technology that analyses facial expressions from both static images and videos in order to reveal information on one's emotional state

Real-Time Face Recognition Using Deep Learning
Developed and deployed a real-time face recognition system using deep learning-based models (e.g., face_recognition library). Utilized facial encodings to compare live camera feeds against a database of known faces for identity verification. The system is capable of handling diverse conditions including different angles, occlusions (like masks and glasses), and lighting variations. Integrated with real-time video streams for applications in biometric security and access control.

Face Search System using FAISS
Built a high-performance face search system using FAISS to retrieve similar faces from large datasets. Extracted face embeddings with deep learning models and indexed them for fast top-k nearest neighbor search, enabling accurate and scalable face matching for biometric applications.

Fall Detection (Real-Time Pose Estimation)
Implemented a real-time fall detection system using YOLOv8 pose estimation to identify abnormal human postures from live RTSP streams, triggering alerts for safety monitoring.

InOut Person Counter System (RTSP Stream)
Real-time person counting system using RTSP camera streams with YOLO detection and line-crossing logic to monitor room occupancy through entry and exit tracking.

Fence Crossing Detection (RTSP Stream)
Real-time detection of unauthorized fence crossings using RTSP video streams with YOLO object detection and line-crossing logic for perimeter breach alerts.

Occupancy Limit Alert System (RTSP Stream)
Real-time occupancy monitoring using YOLO-based person detection from RTSP video. Triggers an alert when the number of people inside a room exceeds a defined limit for safety or compliance purposes.

Safety Dress Detection (PPE Monitoring)
Developed a real-time system to detect safety dress compliance (e.g., helmet, vest) using YOLO object detection from RTSP video streams for industrial safety monitoring.

AI Chat Bot
Uses artificial intelligence (AI) and natural language processing (NLP) to understand customer questions and automate to fetch information from any database

Ambulance Detection
Developed a robust computer vision system to detect ambulances from static cameras.

Pick Management Software
Proficient in utilizing pick management software to optimize warehouse operations, streamline the picking process, and ensure accurate and timely order fulfillment

Human Activity Detection
Device sensors provide real-time insights into what people are doing.

Databases:

- MySQL
- MS SQL
- Clickhouse
- SQLite

Tools/Technologies:

- Git
- Arduino
- SFTP
- REST APIs
- Postman

Edge Computing:

- NVIDIA Jetson AGX
- Embedded Systems Development
- Real-time Processing
- Low-Power Optimization
- ONNX Deployment
- Jetson Nano
- TensorRT

Sign language detection
Skilled in designing and implementing sign language detection algorithms using computer vision and deep learning techniques, contributing to projects focused on accessibility and communication for individuals with hearing impairments

Plant Leaf Disease Detection
Conventional neural network (CNN) models were constructed to identify and diagnose plant leaf disease in basic images of damaged and healthy plants

COVID-19 Prediction System
Built ML models to predict COVID-19 diagnosis based on symptoms and forecast outbreak trends using epidemiological modeling, supporting early detection and public health planning.

Gold Price Prediction
ML based Prediction model to predict gold prices using time series analysis and LSTM neural networks.

Smoke Detection System (Arduino + MQ Sensor)
Designed and built a real-time smoke detection system using Arduino and MQ gas sensors for fire and safety monitoring. The system triggers alerts when smoke or gas levels exceed a predefined threshold.

EDUCATION

- BCA (Bachelor of Computer Application) [2018-2021]
- Python Django Full stack course [2020]