Inthings

INTHINGS COMPUTER VISION CAPABILITY

ADVANCED AI TECHNOLOGY ANALYZING VISUAL DATA EFFICIENTLY

EMPOWERING VISION INTELLIGENCE

Advanced Computer Vision

- InThings Technologies leads in advanced computer vision solutions enhancing surveillance and situational awareness.

Edge AI Integration

- Integrating edge AI enables smarter monitoring, rapid decision-making, and automation across industries.

Real-Time Insights

- The vision intelligence platform delivers real-time insights via optimized hardware and software pipelines.

Scalable and Secure Systems

- Focus on creating scalable, secure, and efficient vision intelligence systems for diverse sectors.

Inthings

KEY COMPETENCIES

Real-Time Video Analytics

Enables immediate processing and interpretation of visual data using advanced video streaming and analytics techniques.

Multi-Camera Orchestration

Ensures synchronized and comprehensive coverage across diverse environments with coordinated multi-camera systems.

Edge AI Deployment

Optimizes deep learning models for inference on edge devices ensuring high performance on constrained hardware.

Cloud Integration and Monitoring

Uses cloud services to facilitate remote monitoring, alerting, and dashboarding for scalable vision solutions.

Inthings

HARDWARE PLATFORMS

Edge AI Processor Performance

TI AM68A offers real-time analytics and low-latency inference optimized for industrial edge applications.

GPU-Accelerated Processing

NVIDIA Jetson Orion provides GPU acceleration for complex deep learning model deployment.

Flexible Camera Integration

Supports IP, USB, and CSI camera interfaces to ensure adaptability across deployment scenarios.

Optimized Hardware Stack

Hardware selected for optimal performance, energy efficiency, and scalability in vision systems.

Inthings
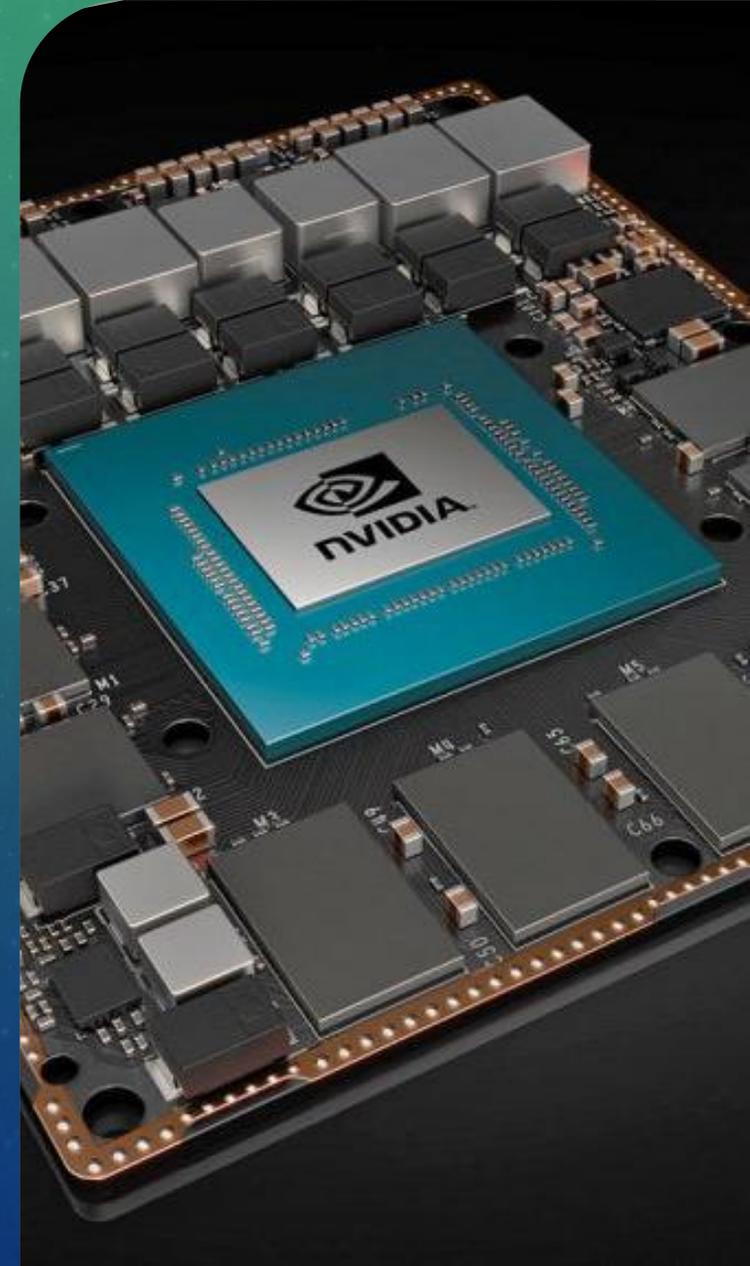
VIDEO PIPELINE ARCHITECTURE

GStreamer for Video Ingestion

- GStreamer framework manages RTMP ingestion and preprocessing for smooth camera data flow to processing units.

DeepStream for Model Inference

- DeepStream performs AI model inference, overlays metadata, and generates event data from video streams.

Azure IoT Cloud Integration

- The architecture integrates with Azure IoT for cloud relay, dashboard visualization, and real-time alerting.

High Throughput and Low Latency

- Designed to handle high-throughput streams with low latency, suitable for surveillance and traffic analysis.

Inthings

OBJECT DETECTION & MULTI-OBJECT TRACKING

Core Computer Vision Functions

Object detection and multi-object tracking identify and follow multiple entities in video frames.
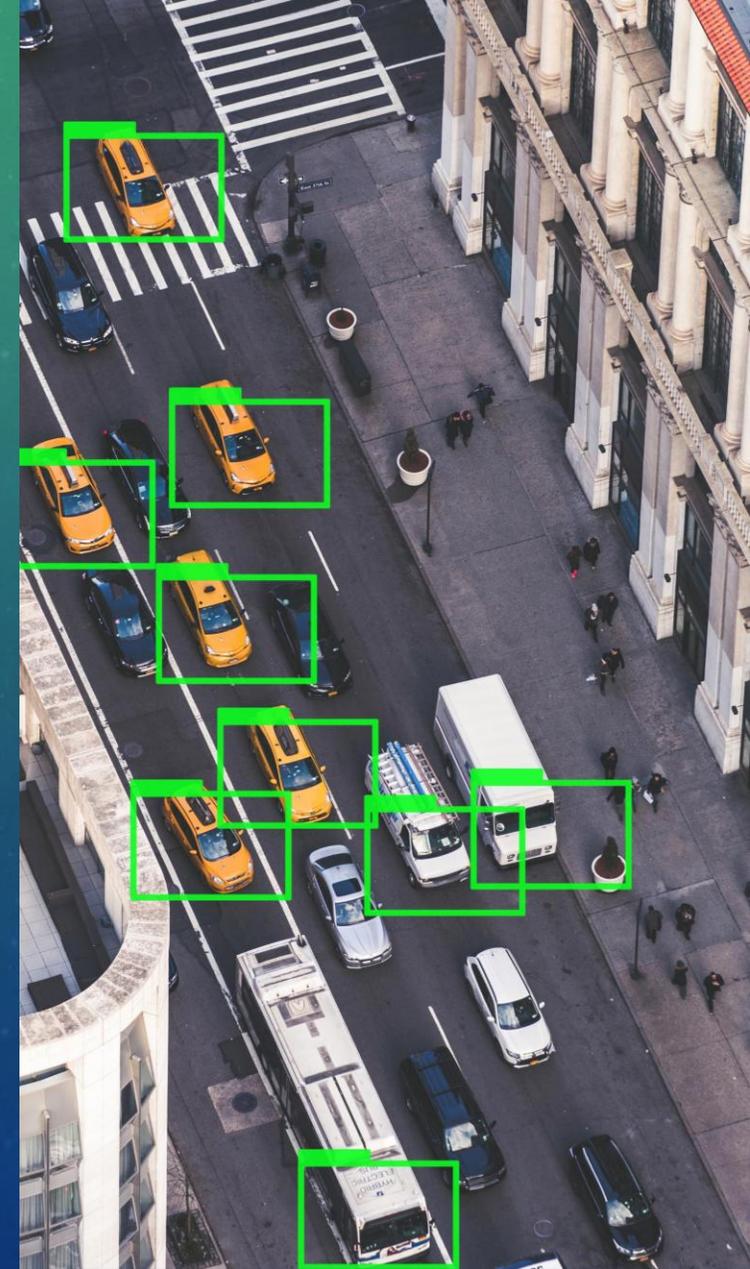
Detection and Tracking Technologies

Uses YOLOv8 for detection and DeepSORT for tracking to ensure accuracy and real-time performance.

Application Areas

Applied in intrusion detection, asset monitoring, traffic analytics, and behavioral analysis across diverse environments.

Edge Deployment Advantages

Models optimized for edge devices enable rapid inference with minimal latency and continuous monitoring.

Inthings

PEOPLE DETECTION & TRACKING

Human Recognition Models

Models designed to identify individuals and monitor movement with high precision.

Detection and Tracking Technologies

Combines NVIDIA PeopleNet for detection and DeepSORT for continuous tracking across frames.

Safety and Alert Features

Includes PPE detection, restricted zone alerts, and behavior analysis for safety compliance.

Real-Time Operational Insights

Operates in real-time to enhance safety and efficiency in industrial and public environments.

Inthings
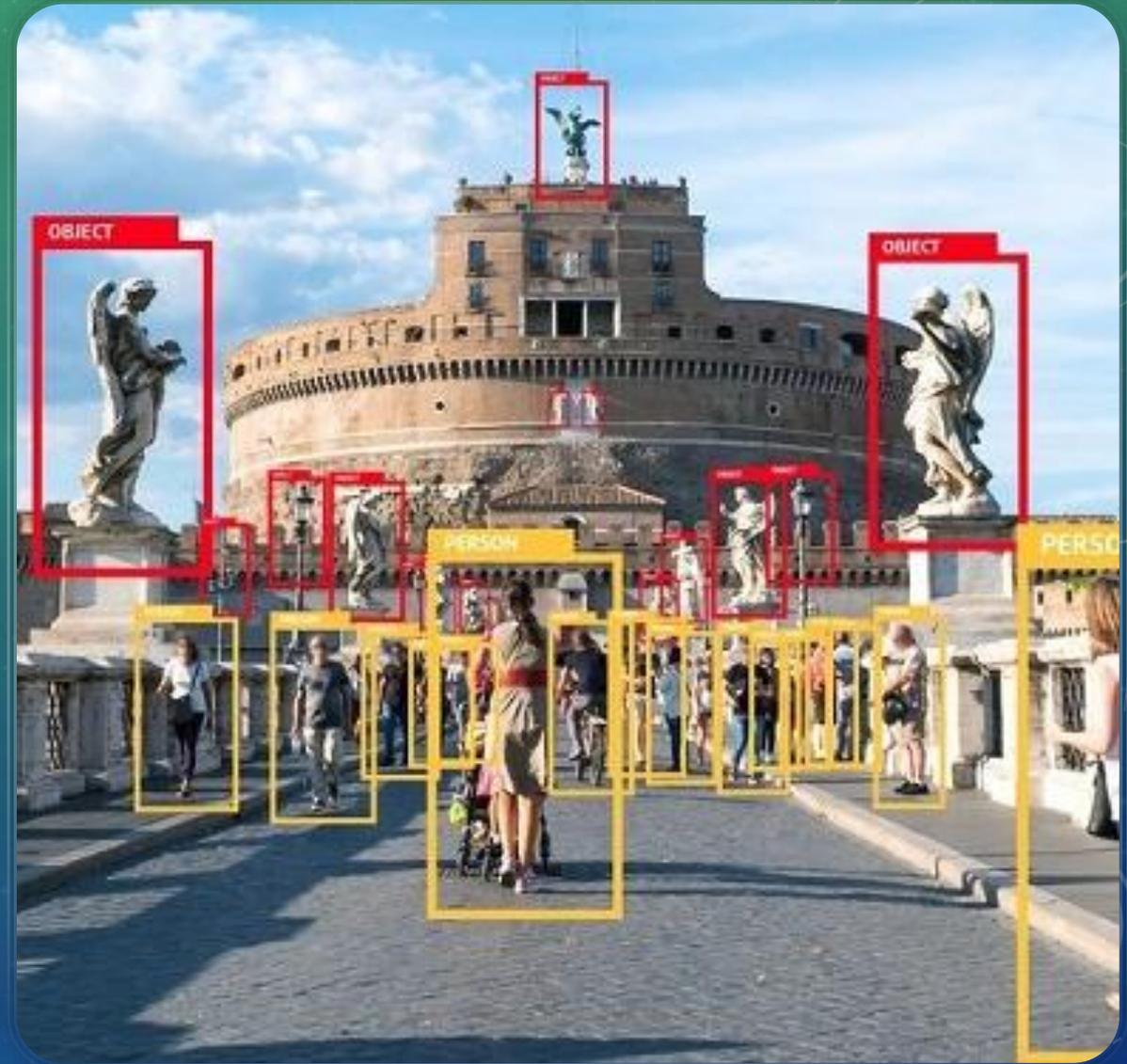
PEOPLE COUNTING

This system uses advanced AI to analyze video feeds from multiple cameras simultaneously.

It can detect, track, and count people in real-time, providing valuable insights from your video data.

Key Features:

•- People Detection: Uses NVIDIA PeopleNet for accurate identification, ignoring low-confidence detections.

•- Unified Person Tracking: Assigns a unique ID (e.g., 'PERSON-1') to each individual across multiple cameras.

•- Cross-Camera Tracking: Maintains consistent IDs even when individuals move between camera views.

•- People Counting: Provides a live count of unique individuals across all cameras.

•- Region-Based Counting: Supports ROI logic to count people entering, exiting, or present in defined zones.

Inthings

VEHICLE DETECTION & TRACKING

AI-Based Vehicle Detection

Trafficcamnet algorithm enables precise vehicle detection and license plate recognition for tracking.

Traffic Violation Alerts

System detects speed violations and wrong-way driving to enhance road safety.

Parking Management

Analyzes parking occupancy to optimize space utilization in parking lots.

Real-Time Edge Processing

Integration with edge devices enables low latency and immediate response to traffic events.

Inthings

FIRE & SMOKE DETECTION

AI-powered system for identifying fire and smoke in real-time using camera feeds.

Built on a custom-trained YOLOv8 model and deployed using NVIDIA

DeepStream.

Key Features:

- Detects fire and smoke with high accuracy

- Real-time alerts and visual overlays

- Runs on edge devices like Jetson using DeepStream

- Supports USB camera input and GPU-optimized processing

- Ideal for industrial safety, public infrastructure, and remote monitoring

Inthings

BEHAVIOR RECOGNITION & POSE DETECTION

This system analyzes human posture and actions in real-time using a multi-layer AI pipeline built on NVIDIA DeepStream and TAO models.

Key Features:

• Detects people and estimates 3D body poses

• Classifies behaviors like walking, sitting, standing, gesturing, violence, and armed threat

• Uses a three-stage pipeline: Person Detection → Pose Estimation → Behavior Classification

• Ideal for safety monitoring, workplace compliance, and public surveillance

• Runs efficiently on edge devices with real-time performance

Inthings

DEPLOYMENT USE CASES

Industrial Safety Monitoring

Real-time hazard detection and compliance monitoring improve workplace safety and reduce risks in industrial environments.

Smart City Surveillance

Traffic management and public space monitoring enhance urban security and streamline city operations.

Retail Analytics

People counting and behavior analysis provide actionable insights into customer patterns and store performance.

Construction Site Safety

Pose detection and personal protective equipment (PPE) monitoring ensure worker safety and enforce protocols.

Public Transport Optimization

Crowd analytics and vehicle tracking optimize operations and enhance passenger experiences in transit systems.

Inthings

C

www.inthings.tech

info@inthings.tech

+9196336 87401/+9189783 90303.

Room No. 16/591, Karinkallathani, Chethalloor-PO, Thachanattukara-II, Palakkad – 678583, Kerala, India.

Inthings