



Mindtree

Welcome to possible

Mindtree's video analytic software.

Overview

Mindtree's video analytics algorithms suite are low complexity algorithms that analyze video streams in real time and provide timely actionable information to make surveillance systems more predictable, accurate and efficient. The suite of algorithms cover a wide range of scenarios - enhancing the quality of video, detecting events related to people, vehicles and objects and enabling easy searching for videos of interest. These algorithms are based on an open architecture, highly scalable, accurate and simple to configure and install.

The video analytics algorithms can be used for safety and security applications like perimeter intrusion detection, fire and smoke detection as well as analysis like Automatic Vehicle classification and counting and face detection.

The algorithms can run either on standard off-the-shelf Windows and Linux Servers or on edge devices. The algorithms can be deployed on cameras that are placed either indoors or outdoors. The algorithms can run on either on fixed cameras or on PTZ cameras that are in a "home" or "preset" position. These algorithms are accompanied with an intuitive and easy to use configuration and rule engine.

Alarms/events from these algorithms can be easily integrated with any video management or incident management system.

Distinguishing features

- Works in real time
- Deployable as Edge based analytics or server-based analytics
- Low complexity algorithms ensures efficient use of resources like processing power and memory
- Tunable and Adaptable to change in lighting and environmental conditions
- Easy to integrate events/alarms generated by the algorithms with Video Management System (VMS) or incident management systems
- Suite of algorithms include unique algorithms like video summarization and real time stitching of video from up to three cameras for panoramic view
- Integration options with various VMS, IP cameras and encoders

Video analytics algorithm features

Scene change & camera occlusion

- Detects video loss/blanking and blinding, blocking, spray painting, repositioning and defocusing of camera
- Invariant to changes in lighting conditions like changes in weather, indoor lighting changes, minor camera shake and any routine activity in a scene
- Automatic training mode available to automatically learn background and its features
- Configurable parameters: Duration of blocking before raising alarm, percentage of blocking required for raising an alarm

Significant activity detection

- Detects activity caused by people, vehicles and other objects
- Detects people in different postures like standing, sitting, bending and crawling
- Invariant to changes in lighting conditions
- Up to 5 Regions of Interest can be configured
- Can be configured to detect activity of only people, vehicles or objects or any combination thereof
- Supports overlaying bounding of activity detected and is color coded based on object type
- Minimum and maximum speed of activity can be specified

Video stitching

- Stitch video from up to four cameras that are either co-located or placed in a stereo fashion
- Supports stitching up to HD resolution at 30 frames-per-second
- Does not require scene learning and training
- Very low latency
- Automatic feature matching and blending
- Cameras can either be wall or pole mounted or mounted on a mobile platform (cameras need to be fixed on to the mobile platform)
- Barrel distortion and other geometric correction available for select lenses
- Cameras can be placed either in the horizontal or vertical direction
- Requires 10-15% overlapping field of view
- All cameras need to have the same focal length

Foreign object detection

- Detect object abandoned / left behind
- Varying level of alert can be provided based on the duration for which an object is left behind
- Detect object missing or scene changes
- Configurable parameters include duration, time period, minimum and maximum size of the object

Video analytics algorithm features

Sterile zone monitoring
<ul style="list-style-type: none">▪ Detects presence of people/vehicle/object within a user defined region. Can also detect entry into and exit from a user defined region
<ul style="list-style-type: none">▪ User defined region can be any irregularly shaped area or a polygonal area
<ul style="list-style-type: none">▪ Configurable parameters include duration for which object of interest must stay within user defined region, direction of movement
<ul style="list-style-type: none">▪ Multiple user defined regions can be marked within the field of view
Direction violation
<ul style="list-style-type: none">▪ Detect people, vehicles and objects crossing a virtual line
<ul style="list-style-type: none">▪ Configurable parameters include direction of interest, time period of operation
<ul style="list-style-type: none">▪ Multiple virtual lines can be marked within a field of view
<ul style="list-style-type: none">▪ Can be used to detect perimeter intrusion, directional violation, compute speed at which objects are traveling, determine traffic density / traffic congestion
Video smoke and fire detection
<ul style="list-style-type: none">▪ Automatic identification of distinct characteristics of fire/smoke patterns based on known signatures built into the system and gives an accurate decision on whether fire/smoke is present
<ul style="list-style-type: none">▪ Supports early detection at the incipient stages to increase the speed of response for intervention
<ul style="list-style-type: none">▪ Detection of fire/smoke is invariant to other moving objects like people, vehicles, etc.
<ul style="list-style-type: none">▪ Detects video signal loss
<ul style="list-style-type: none">▪ Supports multiple regions of exclusion to eliminate highly reflective surfaces
<ul style="list-style-type: none">▪ Supports partitioning of the video image into multiple regions of interest enabling fire/smoke detection only from those regions
Auto PTZ tracker
<ul style="list-style-type: none">▪ Follow and track an object of interest within the field of view of the PTZ camera
<ul style="list-style-type: none">▪ The tracking is triggered by a neighboring fixed camera whenever it detects direction violation or sterile zone violation
<ul style="list-style-type: none">▪ Triggered from one or multiple fixed cameras with rules to handle simultaneous triggers
<ul style="list-style-type: none">▪ Directional violation
<ul style="list-style-type: none">▪ Sterile zone
<ul style="list-style-type: none">▪ Fixed to PTZ Cameras can be in the ratio of 2:1, 3:1 or 4:1
<ul style="list-style-type: none">▪ Accepts encoded H.264 or MPEG4 input IP video streams from fixed camera and PTZ cameras
<ul style="list-style-type: none">▪ Resolution : D1 / VGA @ FPS : 12 – 20 (recommended – 15 fps for normal situations)
<ul style="list-style-type: none">▪ Supports stand-alone and distributed architectures
<ul style="list-style-type: none">▪ Inbuilt Rules, thresholds and timeouts to stop tracking
<ul style="list-style-type: none">▪ Generates alarm to indicate start of tracking
<ul style="list-style-type: none">▪ Very Low Latency for Pan and Tilt Operations with most cameras. Supports up to 10x optical zoom
Guard inactivity detection
<ul style="list-style-type: none">▪ Detect absence of guard from guarding post

Video Analytics Algorithm Features

- Duration of continuous inactivity can be configured

Missing object detection

- Detect object missing or scene changes
- Varying level of alert can be provided based on the duration for which an object is missing
- Configurable parameters include duration, time period, minimum and maximum size of the object

Video summarization

- Allows the user to summarize 3 hours of video into a 30 minute video summary
- Provides the option of small, medium and high for summarizing the video
- Intelligent processing of the entire video to retain the events of interest

People counting

- Designed for entry and exits and produces high level accuracy even under varying environmental and lighting conditions
- Real time operation
- Bi- directional people counting
- Simple set-up and calibration
- Web server interface
- In-built detailed time based reporting
- Table and chart based report representation
- Available both as Edge Analytic Application on Axis camera and Server based analytics on Gladius VMS

Tail gating

- Supports detection of tail gating at entrances, doors, exits
- Users need to draw dual virtual lines as a configuration for detecting tailgating
- Real time operation
- Simple set-up and calibration
- Configurable parameters include direction of interest, time period of operation
- Classification of the detected objects available

Crowd detection

- Designed to detect crowd build up
- Real time operation
- Simple set-up and calibration
- Configurable parameters include minimum number of people to be detected before calling it as crowd
- Size of people

Video Analytics Algorithm Features

Integration support

A Software Development Kit (SDK) is available with the video analytics algorithms. A comprehensive Application Programming Interface (API) with detailed documentation enables easy integration with other systems like video management and incident management systems.

Integration support

Mindtree provides a comprehensive portfolio of feature-rich products and licensable components for the video surveillance market. The video surveillance portfolio comprises of a surveillance manager (video management software and network video recorder), video analytic server and ONVIF software stack. Designed around the core themes of intelligent, standards-based, distributed, scalable and network-ready, these products can either be licensed independently or in combination.

Backed by Mindtree's rich product realization experience and a robust product roadmap, these products help you design and deploy surveillance solutions that are inter-operable, leverage existing investment and are cost effective.

System requirements

- RAM: 8GB
- CPU: Dual Quad Core, 2.8GHz or higher
- Operating system: Windows Server 2008 and above
- Support up to 24 channels with basic analytics* running on each channel