



ioi video analytics

Rule-Driven Detection Modules



The video analytics of ioimage enhances the effectiveness of surveillance by automating the day-to-day and time critical task of monitoring video and detecting events.

Refined for effortless setup and operation, ioimage's real-time image analysis provides computer-vision capabilities that watch every inch of video to increase vigilance, broaden functionality, and automate responses.

Helping to lower costs with advantages over traditional security fences, motion sensors, burglar alarms, CCTV systems and recorders, the ioimage scenario detection is used to secure nuclear power sites and national infrastructures providing high-security that is so easy-to-use, it is ideal for any security site.

intrusion detection



ioimage intrusion detection provides surveillance-watch automation that automatically detects prohibited movement scenarios and can be used on stationary cameras as well as on PTZ camera presets in a rotational display sequence.

There are two modes for detection: ***Movement Behavior and Tripwire.***

Movement Behavior: Provides an alarm when a person or vehicle moves within a prohibited area.

Detection can be defined to prohibit entrance from a specific direction while ignoring entry from other directions and can be independently defined for people or vehicle detection, each allowing distinct directional criteria. Thus, detection in the same scene can be limited to only vehicles traveling the wrong way while simultaneously detecting persons that leave public circulation areas.

ioimage wide-area intrusion detection capabilities can be used in place of many types of straight-line or single-point sensors that provide rudimentary detection which alarms on anything that moves, such as PIR, ground sensors, etc. Limiting focus to persons or vehicles that

match the size and movement behavior criteria and alerting with instant video verification, reduces non-essential security mobilization on spurious activity and provides additional information for security responders to effectively dispatch while maintaining scene safety.

Tripwire: Provides an alarm when a person or vehicle breaches a demarcation line of separation. Detection can be specified to prohibit any crossover or to allow movement in a single direction.

Tripwire detection ignores movement in parallel to specified lines and only detects if the lines are crossed.

The tripwire feature allows the definition of more than one line per scene and multiple segments per single line.

Ideal for detecting fence jumpers as well as persons or vehicles passing through a fence, access control point, or crossing a perimeter boundary.



object removal detection



Provides an alarm when an item is removed from its last location. Detection can be defined to immediately alarm when an object is removed or to allow temporary removal of an object provided the object is restored to the same location within the specified time limit.

This functionality can be used to record and notify when an item is removed. Ideal for monitoring and tracking high-ticket retail items, preventing computer or furnishing theft, alerting on scrap metal theft, identify memorial marker damage, stored vehicle/equipment theft, fixed safety shroud/device removal, etc.

autonomous ptz tracking



Imperative for well-rounded site security and overcoming the shortfalls of ridged video surveillance coverage, the iomage autonomous PTZ tracking module provides self-directed vision-guided tracking to target a moving object. With the automatic acquiring capabilities, the target is kept in-site and in-focus providing magnified identification and information gathering possibilities. This is performed by automatic commanding of the mechanical pan, tilt, and zoom of a PTZ camera as needed to assure the camera maintains constant visual on the target.

Freeing security personnel from manually operating a PTZ joystick, automated tracking can be initiated in several ways including selection of a moving object via monitor software, from intrusion detection on the PTZ camera presets, or from a stationary camera detection that is automatically handed off.

The included PTZ synchronization hand-off feature provides more than a simple jump-to-preset; it translates one camera's scene to the other allowing the PTZ camera to acquire a specific object location from among multiple objects wherever it is. Thus, the object doesn't need to be in the location of a predefined preset nor does the tracking require the directive assistance of a second camera or triangulating sensors.

A crucial solution to the immanent problem of intruders moving out of stationary surveillance camera views, PTZ tracking is not reliant on the security personnel being at the console when the alarm is triggered. Automatically initiated on alarm event, it independently tracks and visually relays a moving targets location rather than security responding blindly to the first detected location.



stopped vehicle detection



Provides an alarm when a vehicle stops in a controlled area where parking, abandonment, standing, or breakdowns are of interest.

Provides an adjustable delay time that allows tailored detection for unique scenarios. Ideal for preventing blocked driveways, parking enforcement, elevated rail crossings, suspicious parking outside perimeters, traffic lane breakdowns, etc.

unattended baggage detection



Provides an alarm when an item (package, debris, baggage, etc.) is deposited or appears in a controlled area. In addition, detection can be configured to ignore items that are attended by a nearby person.

Helps reduce the need for patchy roving patrols and provides rapid detection and pre-alarm recording so that abandon luggage owners can be located more rapidly. Provides detection for disguised objects that may be overlooked by passing patrols or regarded as familiar.

With rapid response and additional information on how the baggage arrived, responders have more time and benefit from greater situational awareness for scene safety and decision-making.

Baggage can not only be detected when carried into a scene by a person, but can also be detected when the baggage is dropped or thrown into a scene from off-camera. In addition, baggage can be detected even if it appears while the scene is temporarily blocked. The unattended baggage detection offers three levels to match the requirements of the scene, unattended detection in sterile areas, semi-crowded areas, as well as detection in crowded scenarios for the presence of stationary baggage.

Ideal for identifying the appearance of potential baggage bombs, rail-line obstruction hazards, fallen rocks, dumping/littering, traffic-lane/runway debris, etc.



intelligent video detection

ioimage intelligent video performs indoor and outdoor detection for various security and safety scenarios, such as intrusion detection, unattended baggage detection, stopped vehicle detection, and object removal detection, as well as provides the security automation feature of autonomous person/vehicle tracking with a Pan Tilt Zoom (PTZ) camera.

Optimized Automatically

All modules use a variety of built-in processes that automatically compensate and adjust to avoid false alarms and assure best image quality for optimized detection:

- Background learning for differentiating trivial movements from those of interest
- Per pixel automatic light adjustments to optimize detection for dynamic lighting changes whether rapid or gradual
- Automatic image quality adjustments to increase image detail for optimized detection
- On-event-management of video stream resolution and frames per second

Real-World Scenario & 3D Modeling

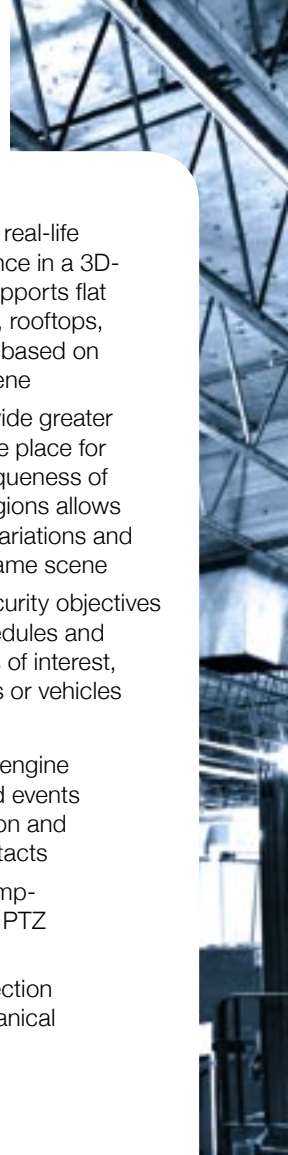
Each detection scene provides a high degree of flexibility for matching the landscape, content, and scenarios of a camera view.

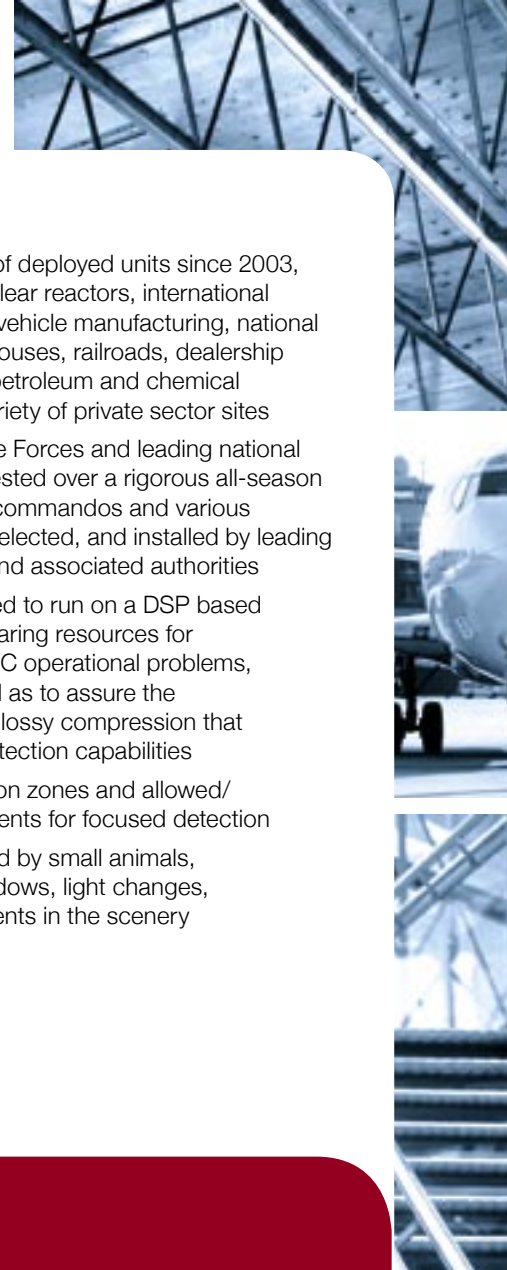
- Provides on-event enabling and disabling of an unlimited number of detection regions of interest for human and vehicle profiles and behaviors

- Superior non-flat detection, judges real-life size equivalency, speed, and distance in a 3D-scape measurement model that supports flat areas, hills, valleys, multiple planes, rooftops, balconies, etc. for higher accuracy based on the optical perspective of every scene
- Free-drawn regions of interest provide greater control of where detection is to take place for best fit detection based on the uniqueness of an individual scene – layering of regions allows the definition of distinct detection variations and different modules applied on the same scene
- Diverse detection options allow security objectives to be achieved based on time schedules and localized detection as well as items of interest, such as baggage, objects, persons or vehicles

Mechanical Automation

- ioimage analytics include an event engine for defining response to alarms and events that allows controlling and turning on and off mechanical devices via dry contacts
- Allows the definition of on-event jump-to-preset responses that move the PTZ camera to a predefined view
- Allows synchronizing intrusion detection alarms with PTZ tracking for mechanical pan, tilt, and zoom commanding





Simplicity

- Video analytics enabled appliances are easy to install and set up in minutes – intelligent video detection is configured using a web browser or optional control software
- Automatically adjusts for best detection at all times – no ongoing adjustments

Performance

- High probability of detection while maintaining a remarkably low rate of false alarms
- Detects intruders under harsh weather conditions, low visibility, and poor lighting
- Detects camouflaged intruders, extremely slow progression (as slow as 1 ft/5 min), and burst movements
- Superior non-flat detection sees objects in 3D-scape and at great distances for reliable detection
- Supports pre-alarm recording for capturing the moments before an alarm

Reliability

- Field-proven with thousands of deployed units since 2003, including civil and military nuclear reactors, international airports, legislative buildings, vehicle manufacturing, national landmarks, distribution warehouses, railroads, dealership chains, religious institutions, petroleum and chemical infrastructures, and a wide variety of private sector sites
- Certified by the Israeli Defense Forces and leading national testing laboratories: military tested over a rigorous all-season period, using trained military commandos and various infiltration tactics – certified, selected, and installed by leading national-testing laboratories and associated authorities
- ioimage analytics are optimized to run on a DSP based appliance in order to avoid sharing resources for intelligent video processing, PC operational problems, and network latencies, as well as to assure the images are processed before lossy compression that reduces image quality and detection capabilities
- Features user-defined detection zones and allowed/disallowed directional movements for focused detection
- Ignores false alarms generated by small animals, swaying branches, cloud shadows, light changes, rain, snow, and trivial movements in the scenery