

AN INTRODUCTION TO BEHAVIORAL ANALYTICS FOR REALTIME VIDEO INTELLIGENCE



viisights

Intelligence by vision

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THE VIISIGHTS ADVANTAGE

Overview

New and emerging security and health safety challenges demand new solutions to best protect people, property, and assets. viisights' innovative behavioral analytics leverage the latest advancements in imaging and artificial intelligence technology to deliver new benchmarks in video intelligence that transcend traditional real-time monitoring and forensics by providing actionable intelligence to minimize liabilities and prevent incidents from escalating.

Why We're Different

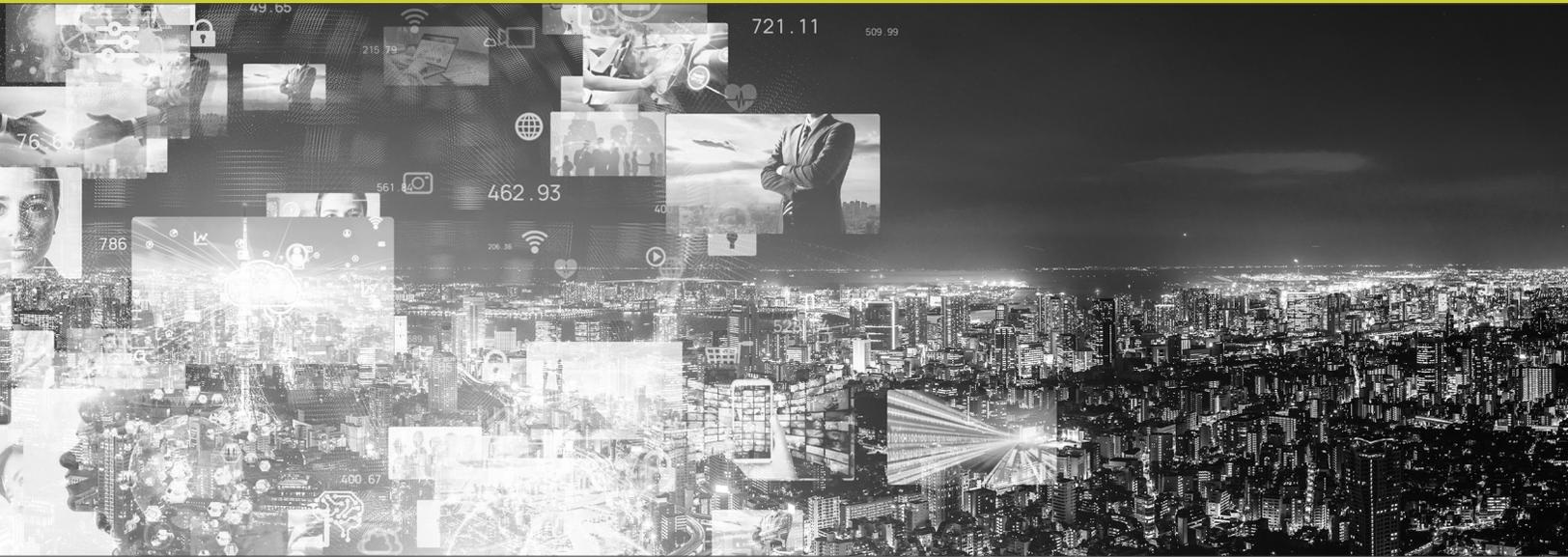
Unlike conventional video analytics that use old pixel technology to recognize static objects and classify objects, viisights behavioral analytics employ Artificial Intelligence (AI) to automatically detect, analyze, and understand actions and events. This unprecedented level of video understanding is based on a unique implementation of deep neural networks capable of analyzing and defining specific activities using video streams from conventional security cameras.

viisights' behavioral analytics recognize the behavior of diverse objects and their relevant contexts. For example, an individual moving back and forth in a predefined area may simply be loitering or waiting for a bus. However, if the individual is hovering in the vicinity of an ATM, this may indicate a potential problem. viisights automatically identifies the location as a bus stop or ATM – without any manual setup or calibration.

The ability to distinguish a potentially dangerous situation from a normal occurrence provides security professionals with the unique ability to initiate fast and appropriate responses to minimize or even prevent incidents from occurring.



THE VIISIGHTS ADVANTAGE



Other common examples of behavior analysis include the ability to differentiate between individuals embracing or fighting, a parade or a riot, or a person falling versus tying their shoelaces.

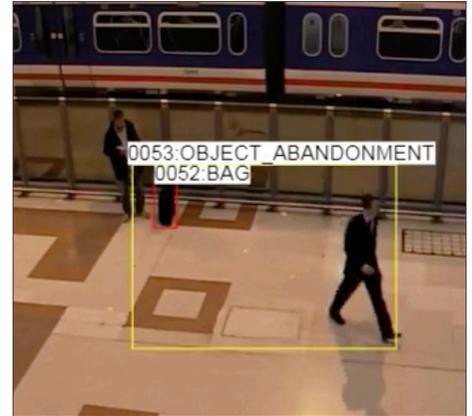
viisights uses deep learning technology to integrate the holistic view of the image and the temporal analysis of the video to provide unique event detection capabilities. These intelligent analytics solutions also continuously learn from video streams to define and prioritize dynamic situations with unique signatures that change over time. This machine learning approach to event detection and analysis ensures that viisights behavioral analytics are both scalable and future-proofed.

A new benchmark in video technology, viisights behavioral analytics deliver unprecedented levels of intelligence using commodity NVIDIA GPU processors in a unique system architecture that significantly reduces the hardware footprint required for advanced analysis in near real time.



viisights unique capability to transform video streams into actionable insights provides users with myriad benefits, including the ability to...

- Automatically detect and predict events of interest such as violent and suspicious activity, crowd behavior, perimeter (protection) violations, public health violations (eg. COVID-19), traffic congestion and accidents, environmental and personal safety threats, and occupancy and mobility counting.
- Improve security monitoring accuracy and efficiency by eliminating the need for personnel to monitor large numbers of cameras simultaneously.
- Reduce personnel cost associated with monitoring large security systems and responding to false alarms.
- Improve SOC/security personnel performance by allowing them to focus on real events of interest and provide additional services.
- Improve overall safety and security through automatic detection, analysis, and reporting.
- Deliver implementation versatility in the Cloud or locally for one, some, or all networked security cameras.



Privacy Protection



The heightened level of situational awareness and risk mitigation provided by viisights solutions is further complemented by the inherent ability of their behavioral analytics to ensure personal privacy protections. This is accomplished by analyzing the general behavior patterns of individuals, groups, vehicles, and traffic-flows without identifying faces or license plates. For high-security or law enforcement applications that require identification and authentication functionality, viisights behavioral analytics can be integrated into systems employing face and license plate recognition solutions.

Key Advantages



Actionable Intelligence

viisights patented video understanding technology employs cognitive computing and holistic video analytics to understand video more like humans do and deliver intelligence in real-time. A breakthrough in video analytics technology, viisights provides actionable intelligence on the events that matter most to help minimize potentially dangerous situations, reduce liabilities, mitigate risks, and help maintain compliance to new and emerging mandates.

viisights provides actionable intelligence on the events that matter most.



Autonomous Operation

viisights provides the ability to not only automatically detect in real-time what has happened, but to predict events before they occur based on preliminary behavioral patterns. This autonomous functionality enables the user to operate with the goal of preventing events of interest by responding before a scenario escalates.



False Positive Reduction

viisights unique video understanding technology makes critical decisions based on a sequence of images in a sliding window of up to 3 seconds – not a single image. This technique dramatically reduces false positives and increases the recall rate, which increases personnel and SOC efficiencies while reducing costs.



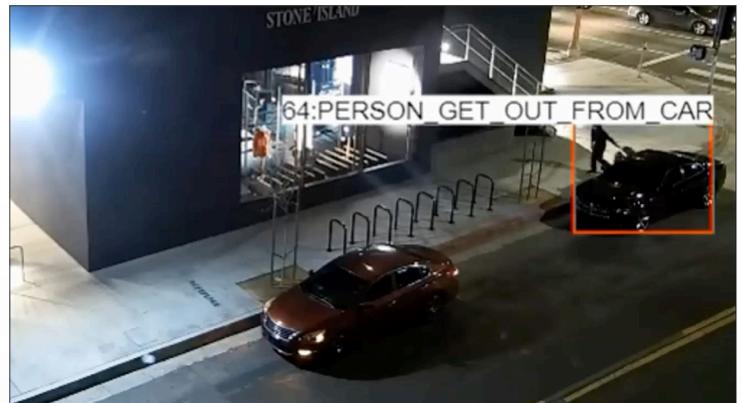
Tangible ROI

In addition to cost-reductions associated with false alarm reduction, viisights behavioral analytics offer a low cost of entry by leveraging existing video camera feeds. The analytics software solution supports two configurations:

1. Maximizing server utilization – maximum streams per server.
2. Near edge architecture – limited number of streams for low energy consumption device.

viisights behavioral analytics offer a low cost of entry by leveraging existing video camera feeds.

viisights behavioral analytics are ideal for a wide range of use cases including safe and smart cities, transportation hubs, banking and financial institutions, corporate campuses, and education campuses.



Learn more by visiting
viisights.com/solutions

CORPORATE CAMPUSES

Making Corporate Campuses Safer Helps Increase Productivity and Profits

Keeping corporate campuses secure has always been a top priority for security professionals to ensure that personnel are safe, and business operations run smoothly without disruption. The global pandemic added a whole new list of challenges to the security equation, necessitating the integration of physical security with health safety precautions into a single overlapping objective and requirement.



From a physical security perspective... corporate campuses face a number of longstanding challenges. Although conventional video and access systems address fundamental monitoring and accessibility functions, they fall short in providing a preventive and proactive solution. This includes the ability to detect trespassing, active shooters and workplace disputes, weapons detection, parking capacity, sensitive perimeters for machinery or service areas, and suspicious behavior – all activities that typically do not trigger conventional alarms.

From a health safety perspective... the global pandemic raised awareness as to the real and present danger that both natural and man-made contagions present to organizations. During active emergencies, corporate campuses need the ability to monitor and enforce occupancy limitations and traffic patterns, as well as crowd and population densities in public spaces to help contain the spread of infection.



The new combined need for new, more advanced physical security and health safety solutions at corporate campuses is further compounded by the need to maintain personal privacy protections and allow fluid movement of personnel and vehicular traffic.

Behavioral Analytics Enhance Physical Security and Health Safety

viisights advanced behavioral analytics resolves many of the new challenges faced by security management at corporate campuses by leveraging existing investments in video and access control systems for seamless deployment. The advanced technology automatically detects events of interest with the ability to automatically initiate a lockdown when identified threats are detected, potentially saving lives.



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Built on a foundation of advanced Artificial Intelligence (AI) algorithms that detect and analyze video content in real-time, viisights behavioral analytics provide actionable intelligence that transcends conventional physical security systems. The innovative solution helps prevent incidents from escalating, dramatically increasing security and safety and minimizing liabilities.



viisights behavioral analytics accomplish this by learning to distinguish between common occurrences like people hugging versus fighting or being pushed to the ground versus falling. The same levels of intelligence can be applied to exterior events to automatically detect vandalism, fender benders in the parking lot, rioting versus rallying, or the difference between brandishing a cell phone or a gun. Conventional video cameras and analytics simply are not capable of making human-like distinctions that viisights behavioral analytics deliver.

Equally important, these behavioral analytics allow corporate campuses to easily and cost-effectively leverage existing capital investments in video camera systems, creating safe and secure working environments that are more productive and profitable. The low cost of entry provides corporate campus owners and management with a win-win proposition, and a long-term solution along with a tangible and significant Return on Investment (ROI).

Automatic real-time detection of abnormal behaviors and/or events can initiate immediate remedial action to help thwart potentially threatening incidents from escalating. Public awareness of this advanced technology deployed at corporate campus locations can also prove to be a powerful deterrent to individuals with bad or harmful intentions. Examples of potential threats and incidents of interest include:

- ❑ Trespassing in restricted areas and zones
- ❑ Tailgating at vehicle and/or personnel entry points
- ❑ Violence - shooter prevention, workplace disputes
- ❑ Weapon detection that can differentiate between a holstered and brandished weapon
- ❑ Prediction and alerting for bullying, fighting or violent activity
- ❑ Vandalism and theft
- ❑ Crowd recognition, size and behavior
- ❑ Occupancy analytics
- ❑ Person with or without a protective face mask
- ❑ Suspicious activity such as contextual loitering
- ❑ Parking capacity and unwanted visitors traffic monitoring, collisions, and other vehicle related incidents
- ❑ Life safety monitoring for smoke, fire, and other environment hazards





Prevent Trespassing or Entry into High Security Areas

Corporate campuses typically endure continuous activity with high levels of pedestrian and vehicular traffic moving about publicly accessible areas. Vendors and other campus related service personnel also need easy access to protected areas where facility operations such as electrical or water services may reside. This poses a significant challenge for security personnel tasked with monitoring numerous cameras in real-time.

viisights adds video intelligence to conventional camera systems with the ability to automatically identify when unauthorized personnel have entered secured areas, effectively increasing security both during conventional working hours and when access to facilities should be limited.

Abnormal Behavior and Events of Interest

Since most criminal acts and acts of vandalism are conducted beyond the eyes of security personnel, automatic real-time detection of suspicious or criminal activity can initiate immediate remedial action to help thwart criminal activities and prevent potentially harmful incidents from escalating. viisights behavioral analytics can detect a wide range of behaviors that may otherwise go undetected until an incident occurs and escalates. Whether applied to dozens or hundreds of camera video streams, viisights behavioral analytics ensure that events of interest and potentially threatening situations never go undetected. Security personnel are notified the moment an event of interest is detected so they can take corrective action.





Workplace Violence

Every large campus business environment is challenged with detecting and preventing workplace violence, including active shooters. viisights' advanced AI-driven violence detection analytics provide security management with a powerful tool to proactively detect and help prevent workplace violence from happening and escalating. In addition to physically protecting employees and sustaining normal business operations, the ability to proactively prevent workplace violence instills a sense of security that promotes greater productivity and better corporate culture.

Weapons Detection

More accurate and effective than traditional active shooter solutions, viisights behavioral analytics can recognize a person holding a weapon in a threatening position. The presence of the weapon not being held in a threatening position would not trigger an alert but will be when the weapon is brandished or prepared for use, or a series of identified threatening motions is detected. viisights behavioral analytics recognize and analyze various data points to help distinguish real events from false alarms, helping to identify a dangerous situation even before a shot is fired.

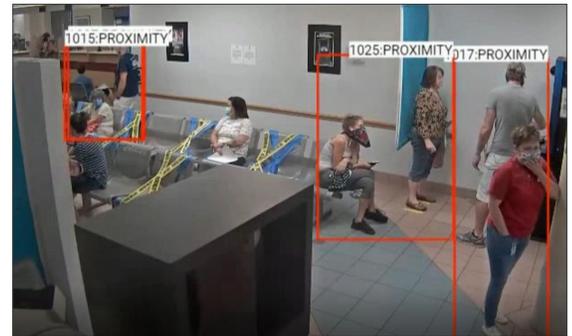


Enhance Vehicular Mobility and Safety

Traversing corporate campuses parking areas can be a real challenge and liability for security and facility management. viisights intelligent behavioral analytics can help improve pedestrian and vehicular safety and traffic fluidity by instantly detecting abnormalities such as car and pedestrian accidents, vandalism, theft, and overcrowded parking lots and drive thru lanes by notifying security personnel to take remedial action.

Occupancy, Social Distancing, and Group Density Analysis

Even prior to the pandemic, corporate campus facilities are required to comply with strict occupancy restrictions. viisights behavioral analytics can determine group density (classified as "low", "medium" or "high") to help enforce occupancy compliance requirements.



“ Personal safety is improved with automatic alerts for slip and fall situations, or close proximity to a dangerous area or equipment. ”



Identify Personnel With and Without Masks

Many organizations and municipalities have initiated rigid compliance mandates for protective face coverings. Lack of compliance can lead to fines, exposed liabilities to legal action and more. viisights behavioral analytics can automatically detect if an individual is or is not wearing a mask or mandated protective gear in specified areas.

Environment & Personal Safety

Virtually every corporate campus facility is required to have robust life safety fire and smoke detection systems in place. viisights intelligent analytics can supplement these systems to detect fire and smoke in surrounding outdoor areas where these systems are not deployed. Personal safety is improved with automatic alerts for slip and fall situations, or close proximity to a dangerous area or equipment.



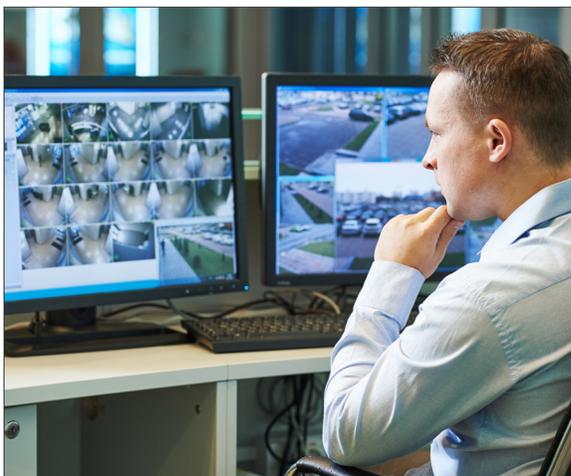


Improve Emergency Response Times

viisights behavioral analytics notify authorized personnel to initiate action the instant a defined event of interest or an imminent threatening situation is detected. This unique ability to detect behavioral related situations and dispatch first responders in all but real-time greatly reduces response times to potential and active events which can help to better protect people, property and assets and minimize exposure to liabilities.

Improve Resource Utilization

Nothing makes workers and customers happier than a clean and safe environment. The ability to autonomously detect unsightly litter or overflowing trash receptacles, the need for basic grounds cleaning or snow removal, or individuals in need of basic assistance allows security personnel to immediately initiate remedial actions.



Reduce False Alerts and Alarms

viisights behavioral analytics makes decisions based on a sequence of images in a sliding window, not a single event. This method of analysis helps to dramatically reduce false alarms, effectively increasing personnel efficiency while lowering operating costs. Eliminating false and nuisance alarms also allows security and operations personnel to focus on real events of interest and other services they otherwise would not have the time to provide.

Leverage Existing Investments in Video Technology

viisights behavioral analytics offer a low cost of entry by leveraging existing investments in video surveillance cameras and technology. The innovative behavioral analytics solution also offers versatile configuration options to maximize server utilization with near edge architecture.



A Scalable, Future-Proof Solution

viisights behavioral analytics are infinitely scalable to accommodate even the largest corporate campuses and video surveillance and security networks. Any number of cameras can be implemented and added at any time to accommodate your timing and budgets.

Learn more on how to make your corporate campus
smarter and safer by visiting
viisights.com/solutions/corporate_campuses