

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.

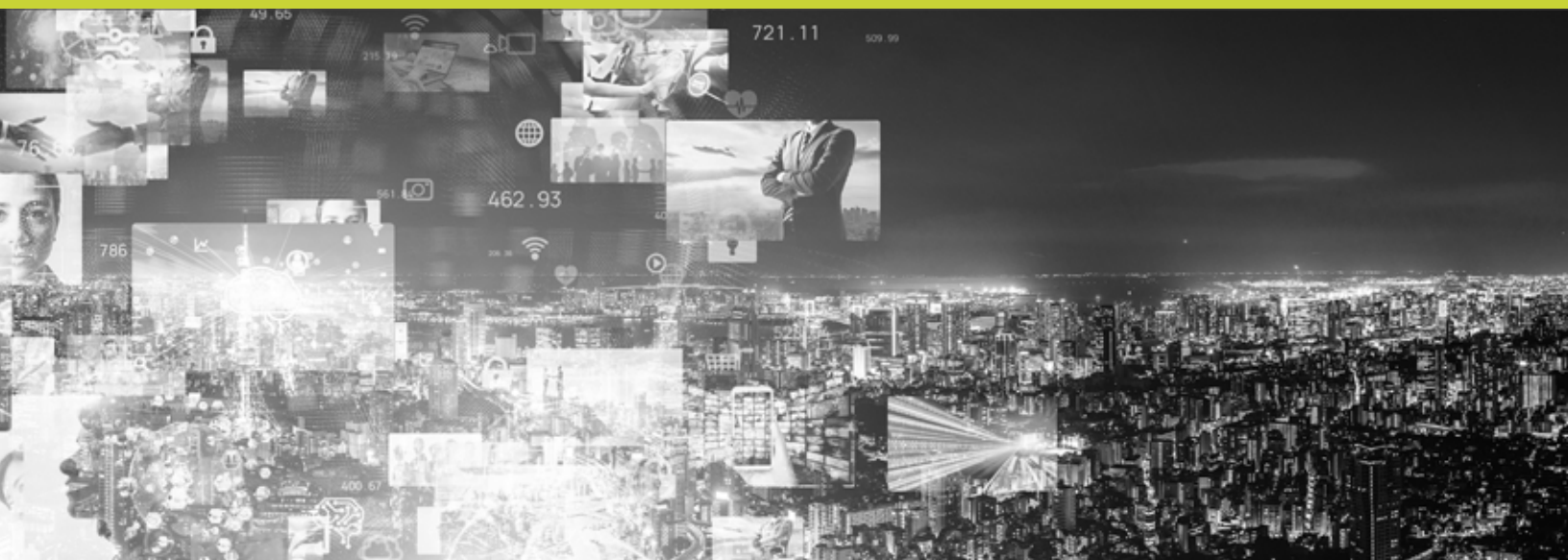
Why We're Different

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.





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.

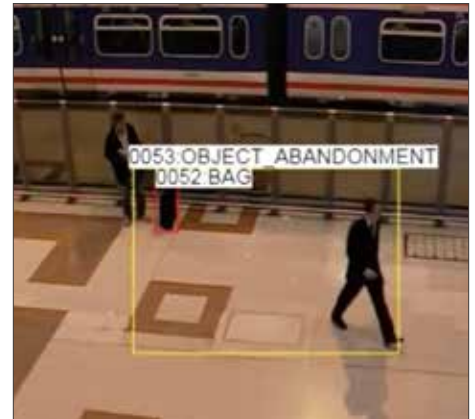
viisights uses deep learning technology to integrate the holistic view of the image and the temporal analysis of the video to provide unique event detection capabilities. These intelligent analytics solutions also continuously learn from video streams to define and prioritize dynamic situations with 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

TRANSPORTATION HUBS

Intelligent Behavioral Analytics Make Transportation Safer, Secure, and Efficient

Perhaps one of the most valuable assets to modern society, the transportation industry plays a critical role in providing business and personal travel and supporting global commerce on every conceivable level. Yet the transportation industry has virtually been under siege from a variety of entities over the years ranging from the likes of terrorists, smugglers, and unruly passengers – and now the new silent nemesis called COVID-19. Despite numerous challenges, the transportation industry continues to prevail by continually reinventing itself through the implementation of new procedures and innovative technologies.

One such innovative technology now trending is behavioral analytics, particularly in real time.

Airport, railway, and shipping transportation hubs, as well as highway and road management agencies around the world are among the biggest proponents of new and cutting-edge technologies that collect data for a wide range of security and business intelligence applications. Video surveillance is one of the primary security technologies most facilities have already deployed throughout the transportation industry, now supplemented with numerous new IoT and edge devices used to collect new sources of data. Walk through any transportation hub and the presence of video cameras is obvious, both as a deterrent against criminal and mischievous behavior, as well as for risk mitigation to document events and activities that could present liabilities. Video surveillance technology has proven to greatly enhance situational awareness by providing coverage of areas that would otherwise require on-site personnel to effectively observe events and behaviors.

However, large transportation hubs and road systems may employ video systems with hundreds or even thousands of cameras. That's a lot of video for even the largest staffed facilities to monitor in real time, relegating much of their use for forensic investigations after an event occurs and the damage is done.



viisights behavioral analytics set a new benchmark in intelligent video technology. Built on a foundation of advanced Artificial Intelligence (AI) algorithms, viisights behavioral analytics detect and analyze content in real-time instead of simply classifying objects and their related movements or attributes. This technology provides actionable intelligence to help prevent incidents from escalating and minimize liabilities, dramatically increasing safety, security, and operational efficiency. viisights unparalleled data analysis capabilities also transcend conventional applications for real-time video surveillance monitoring and forensics to deliver true business intelligence.



viisights behavioral analytics set a new benchmark in intelligent video technology.

viisights behavioral analytics accomplish this by “learning” to distinguish between common occurrences like two people embracing in an airport terminal versus fighting, or someone handing luggage to another for assistance versus preventing a thief from snatching and running away with it, or a group of individuals intermingling on a train platform versus menacing or detecting a traffic jam in a parking lot versus an accident. Conventional video analytics simply cannot make these types of human-like distinctions that viisights behavioral analytics deliver.



The utility of viisights intelligent behavioral analytics can also be leveraged to resolve longstanding challenges at transportation hubs such as alerting on unattended child vs. child accompany with its parents or elderly visitors who may have wandered off, tracking misplaced or stolen luggage, or reallocating staff to accommodate high pedestrian or vehicular traffic. The versatile technology can be leveraged for these and numerous other operational and business intelligence applications to help sustain smooth and profitable operations.



viisights' innovative behavioral analytics is camera and VMS agnostic, allowing transportation hubs to cost-effectively leverage their existing capital investment in video camera systems to improve overall safety and security. The low cost of entry provides transportation management with a long-term, highly effective risk mitigation solution that improves overall security and safety with a tangible Return on Investment (ROI).

The numerous benefits provided by viisights behavioral analytics include...

Automatically Identify and Predict Events of Interest

viisights behavioral analytics operate 24/7/365, ensuring that events of interest and potentially threatening situations at transportation facilities never go undetected, and operations run smoother.

Further, it provides the ability to predict events before they occur based on preliminary behavioral patterns. This functionality allows users to operate with the goal of preventing events of interest and responding before a scenario escalates.

Eliminating much of the need for live video monitoring, authorized personnel and system operators are automatically notified as soon as an event of interest is detected or predicted, including:

- Violent activity
- Crowd development, preset size estimate, and predetermined crowd behavior
- Trespassing in restricted areas and zones
- Suspicious activity such as contextual loitering (i.e. unattended child), vandalism, falling, and weapon detection
- Traffic issues, collisions, and road incidents
- Smoke, fire, and other environmental hazards
- Waste buildup or collection issues
- COVID-19 social distance violations and mask wearing



Reduce and Prevent Criminal Activity and Unruly Behavior

Since most crimes are conducted beyond the eyes of security personnel, real-time detection of suspicious or criminal activity can initiate immediate remedial action to help thwart criminal activities and prevent incidents from escalating. Since viisights can be applied to any specific camera, groups of cameras or system wide, transportation officials can leverage the power of viisights behavioral analytics to focus on high traveler traffic areas, or specific locations such as boarding areas or platforms to attain higher levels of situational awareness and tighter security and safety measures.



“viisights intelligent analytics automatically monitor crowd density and behavior.”

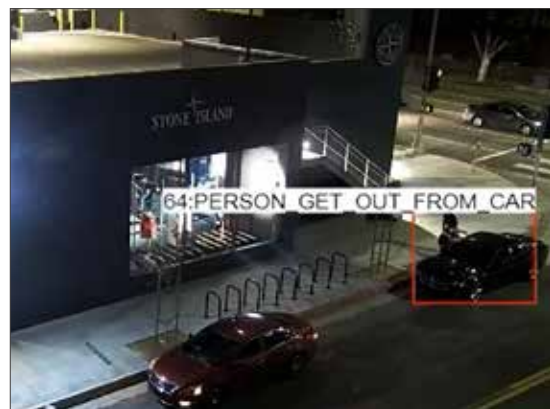


Monitor and Maintain Occupancy Limitations

The global pandemic has stimulated the need to carefully monitor and control how many individuals occupy a given area at any given point in time. Nowhere is this more evident than in mass transportation terminals where large groups of people congregate to board airplanes, busses, trains, and ships. viisights intelligent analytics automatically monitor crowd density and behavior, allowing transportation terminal personnel to maintain compliance with mandated occupancy thresholds and distance requirements.

Detect Suspicious Activity That May Otherwise Go Undetected

The ability to identify potential problems before they occur provides security personnel with a huge advantage. Consider an individual lingering about in a parking lot, stairwell, or near an ATM as perfect examples. viisights innovative behavioral analytics learn and recognize suspicious behaviors, and automatically alert authorities to take a closer look before an event takes place or escalates.



Protect Restricted Areas from Unauthorized Personnel

Transportation terminals are literally hubs of continual activity with numerous personnel moving about both publicly accessible and restricted areas. This poses a significant challenge for security personnel tasked with monitoring large camera systems in real-time. viisights adds video intelligence to conventional surveillance systems with the ability to automatically identify when unauthorized personnel have entered secured areas,

effectively increasing safety and security from potential incidents related to crime, terrorism, vandalism, or contraband.



Improve Emergency Response Times

viisights behavioral analytics notifies predetermined personnel or system operators to initiate action the instant a defined event of interest or an imminent threatening situation is detected. This unique ability to detect situations, which mostly are behavior-related, and dispatch first responders in all but real-time greatly reduces response times to crime scenes, accidents, environmental spills, flash floods, fires and more, which can effectively save lives.





Identify Weapons and Potentially Dangerous Packages

Terrorism is a real and dangerous threat to all forms of transportation globally. Intelligent video and behavioral analytics from viisights can help authorities at transportation hubs maintain constant vigilance and autonomously detect potential threats such as weapons or potentially dangerous packages left by a person.

Improve Pedestrian and Vehicular Mobility and Safety

Traversing mass transportation parking lots and pick-up areas can be a real challenge for both visitors and facility management responsible for maintaining operations. viisights behavioral analytics can help improve pedestrian and vehicular safety by instantly detecting potentially dangerous situations, traffic delays and accidents, and notifying security and traffic management personnel to take action.



Expedite Passenger Egress/Entry in Transportation Terminals

Nothing makes travelers happier than fast and easy entry and egress from transportation terminals. Passenger ship terminals are the perfect example, where



intelligent behavioral analytics can all but instantly identify and classify congested passenger boarding areas or potentially hazardous situations requiring immediate attention. This is especially critical during the pandemic when passenger health monitoring and social distancing are essential. These same passenger safety and security benefits apply to all types of transportation terminals.

Reduce False Alerts

viisights unique video understanding technology dramatically reduces false positives since it doesn't make a decision on a single image but on a sequence of images in a sliding window, this method increases personnel efficiencies and overall safety and security while lowering operating costs. Eliminating nuisance alarms and investigations also allows 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.

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A Scalable, Future-proof Solution

viisights behavioral analytics are infinitely scalable to accommodate even the largest transportation hub facilities. 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
transportation hub facility safer by visiting
viisights.com/solutions