

# IntelexVision Insights

A SERIES OF  
SECURITY  
INDUSTRY  
WHITEPAPERS

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## Enhancing Sports Venue Security with AI-Driven Video Analytics



# AI-Enhanced Video Surveillance Solutions for Arenas

AI-powered systems analyse real-time video feeds to detect unusual activities, identify potential threats, and provide instant alerts to security personnel. This technology not only enhances the accuracy and speed of threat detection but also reduces the reliance on manual monitoring, thereby decreasing human error.

By employing a proactive approach, AI-driven video analytics can identify early signs of violence, smoke, and fire within sports arenas, enabling swift intervention before situations escalate. This capability is crucial for distinguishing between panic, crowd surges, and other dangerous behaviours, ensuring prompt and appropriate responses to potential hazards.



Hospitals



Airports



Shopping malls



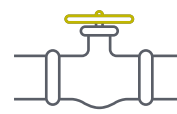
University campuses



Borders



Solar farms



Pipelines

**IntelexVision's iSentry, an AI-powered platform** for detecting unusual behaviour, has been successfully deployed in arenas and stadiums across multiple countries worldwide. This system is designed to protect people, property, and assets in crowded environments.

*Reliable, responsive and accurate monitoring of objects & human behaviour in real-time with fewer control room operators*



## Arenas: the challenges

AI-enhanced video surveillance solutions can significantly bolster security for stadiums and arenas by providing real-time monitoring and analysis of large crowds. These advanced systems can detect unusual behaviours or potential threats such as fights, unattended bags, or unauthorised access to restricted areas, enabling security personnel to respond swiftly and effectively. Moreover, AI can assist in managing crowd flow, identifying bottlenecks, and ensuring efficient evacuation in case of emergencies.

By reducing the reliance on manual monitoring, these intelligent solutions enhance overall situational awareness and operational efficiency, ultimately ensuring a safer environment for spectators and staff alike.

With thousands of people transiting the arena at any given time, how can security professionals know where and how to focus their video surveillance? Whose potentially 'unusual behaviour' do you analyse first, why and for how long?

But with more and more cameras to monitor, control room operators are simply unable to cope with the volume of CCTV feeds. **It is physically and financially impossible to employ the number of operators that would be required to effectively monitor all CCTV in real-time.**

Deploying iSentry AI video analytics from IntellexVision can improve safety and security in arenas through several key use cases.

By leveraging these use cases, iSentry can enhance the safety and security of stadiums and arenas, providing a safer and more enjoyable experience for all attendees.

**Crowd Management:** iSentry can monitor crowd density and movement patterns in real-time, identifying potential bottlenecks or overcrowded areas to prevent stampedes and ensure smooth crowd flow. Moreover, it can monitor queue lengths at entrances, concession stands, and restrooms, providing insights to improve service and reduce wait times, and operational efficiency, in general.

**Intrusion Detection & Access Control:** The system can detect unauthorised access to restricted areas, such as VIP sections, player zones, or control rooms, and alert security personnel immediately to prevent breaches. iSentry can detect and alert to any attempts at forced entry or trespassing, enhancing the overall security of the venue.

**Incident Detection and Response:** iSentry can identify incidents such as fights, vandalism, or other suspicious activities within the venue, enabling rapid response from security teams to mitigate risks and maintain order.

**Lost and Found Monitoring:** The technology can help identify unattended bags or items left behind, allowing security to investigate potential threats or assist in returning lost items to their owners.

**Safety Compliance:** iSentry can ensure that safety protocols, such as emergency exits being kept clear and safety barriers being in place, are adhered to, reducing the risk of accidents and ensuring compliance with regulations.

**Emergency Evacuation:** In the event of an emergency, iSentry can assist in monitoring and managing the evacuation process, ensuring that exits are used efficiently and identifying any issues that may arise during the evacuation.



# The solution



## How iSentry works

**iSentry is an Artificial Intelligence-powered video analysis platform.** It can be installed on new systems as well as the vast majority of existing CCTV systems.

Equipped with the latest Artificial Intelligence (AI) and Neural Networks based Machine Learning algorithms, iSentry quickly learns what is normal from an individual CCTV camera feed, so that it can then detect the abnormal. It can be deployed in systems from just a few cameras up to thousands of cameras.

After a norm is established for a particular scene, the system will then create alerts based on exceptions or **'events of interest.'** iSentry then classifies each event upon detection using Deep Learning tools and a logic engine. This provides instant situational context to control room operators so that they can better understand what they are being shown, allowing them to respond appropriately.

iSentry can, for example, recognise that a group of five or six individuals huddled around a restricted entrance for a prolonged period may be an event of interest, while also being able to differentiate and understand that a family gathering near a concession stand is not a cause for concern.

iSentry detects loitering, directional violation, unusual objects entering a scene, running, violence, tailgating, smoke and fire, major leakages, removed or introduced static objects, people climbing walls, entering a perimeter or

area, or graffiti painting. iSentry can also carry out pose analysis, (whether someone is standing, sitting, lying on the ground or has fallen) and many other abnormal situations.

Its Deep Learning engine recognises multiple classes of objects even at difficult angles. Additional capabilities have recently been added such as the ability to monitor for Health & Safety compliance, for example, the wearing of hard hats, high visibility jackets, eye protection glasses, face shields or facemasks for COVID compliance.

**iSentry's powerful Logic Engine can largely and autonomously fulfil the function of a video surveillance operator.** More than 80% of the time it will be capable of reaching a correct decision regarding an event of interest, based on the number and combination of object types that trigger an alert, the time of day and object size, or even the likelihood of accurate classification.

Any incident that iSentry cannot confidently classify automatically or determine through the rules engine whether to dismiss or alarm is then transferred to a human operator for further investigation and decision-making. iSentry empowers control room operators to solely focus on those decisions at which humans excel. iSentry also enables control rooms to function effectively with **far fewer operators, as massive quantities of video** can be meaningfully and accurately monitored, and processed by the platform.



# iSentry vs. video verification analytics

To reduce the number of false alarms many Video or Alarm Monitoring Centres use Video Verification Platforms to determine if there are people or vehicles in specific snapshots of alerts, typically generated by on-camera motion detection analytics. This can lead to a reduction in overall alarms by as much as 50-70%.

While this sounds impressive, control room operators are still left with an insurmountable quantity of false alarms to deal with on every shift.

## iSentry is different.

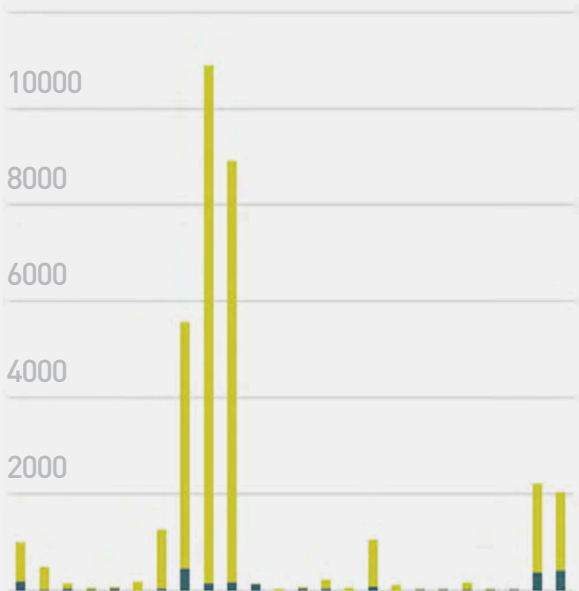
The iSentry platform uses AI to first detect and then intelligently classify alerts. As a result, the number of alerts control room operators receive is **90-95% lower than standard video verification systems**. With iSentry, fewer operators can perform more, and to a much higher standard, freeing personnel to work on other higher value-added tasks.

## Case studies

### Case 1: Reducing Opex

We tested iSentry's Unusual Behaviour on a 25-camera system against traditional video verification software platforms. iSentry escalated 2,086 alerts to operators, against 32,616 alerts from standard video verification software. **iSentry also reduced escalated operator alerts by 94%** greatly increasing efficiency and lowering alert-related operational costs.

#### Comparison camera by camera



Comparative analysis of the alerts generated by each camera-to-camera system

 iSentry  Video verification SW

### Case 2: Reducing Opex

In a major city, iSentry monitors many thousands of cameras in real-time. Our system's AI and Deep Learning powered alert detection has become so precise that our system now only presents 1% of total recorded video to a control room operator for review.

**The accuracy of their recall of events of interest flagged by iSentry is 90%+.** Prior to our system being installed, this was between just 5% and 10%.

Prior to iSentry's installation, one control room operator was responsible for managing up to 80 cameras with very poor incident detection performance. With iSentry, the same operator can monitor a daily average of **350 cameras and up to 800 cameras at off-peak times**.

### Case 3: Reducing Capex

iSentry was installed by a major bank across hundreds of branches with an average of 30 CCTV cameras per branch. As a result the total amount of video to be reviewed was reduced to less than 1% of the previous quantity, without missing any event of interest.

This significant reduction in video footage and the efficient hardware and software architecture of iSentry has led to very low bandwidth demands on the central Control Room together with a reduced need for operator consoles. This has led to major CAPEX savings.

# The benefits of iSentry



UP TO  
**40%**  
REDUCTION  
IN CAPEX

## Fewer cameras needed and less related infrastructure

Effective monitoring with fewer cameras across your venue and estate

**Maintain your current CCTV system** iSentry is hardware-agnostic working effectively with most existing CCTV systems



UP TO  
**75%**  
REDUCTION  
IN OPEX

## Fewer operators needed

Operators can monitor 10x more cameras than before

## Fewer false alarms

With fewer false alarms, costs related to unnecessary security personnel visits and interventions are reduced

*iSentry is a smart, non-invasive security platform that does not use facial recognition technology nor any Personal Identifiable Information while delivering a higher detection rate.*

# AI-powered CCTV analysis from iSentry



Major cost savings with a **90%-95% reduction in false positives** compared with most advanced camera analytics software systems



Operators can **monitor 10x** the number of cameras



Works with most existing **CCTV systems**



Used by governments and businesses **worldwide**