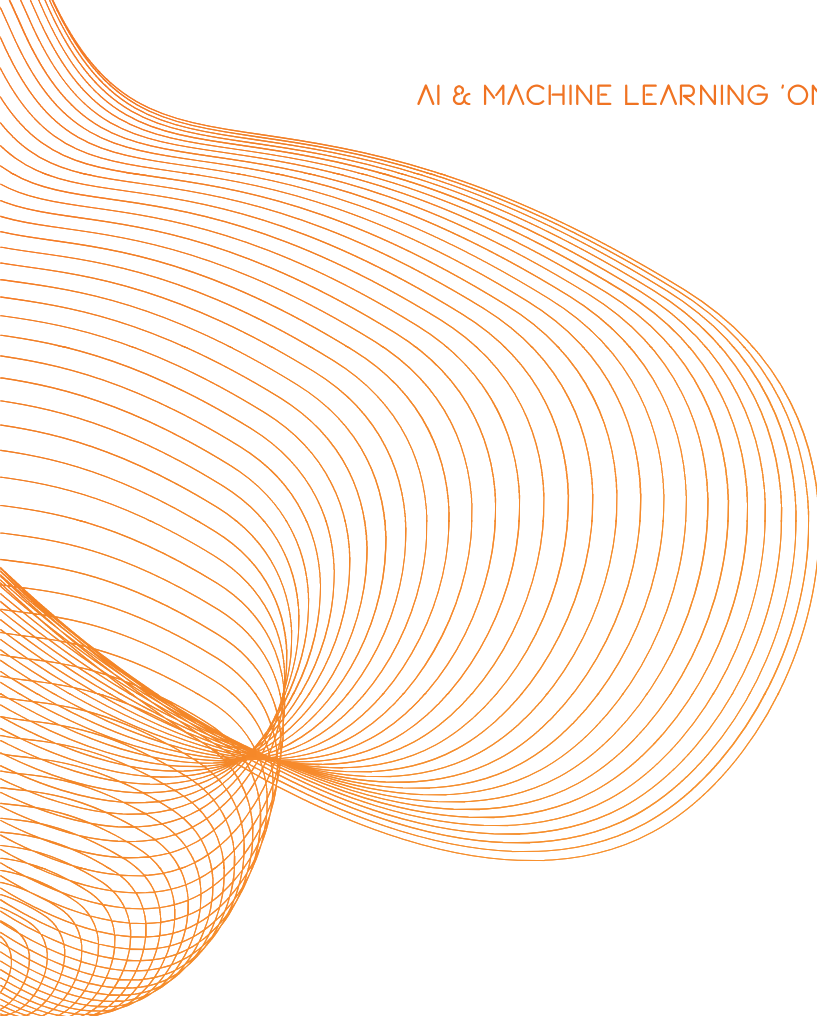


AI & MACHINE LEARNING 'ON THE EDGE'

AVT



AERVISION  
TECHNOLOGIES



AERWATCH®

## About Us

AerVision Technologies is a technology company developing innovative solutions for enhanced safety and security using state-of-the-art artificial intelligence, computer vision, biometrics, Internet-of-Things, and video analytics.

Founded in 2013 by two world leading PhD biometrics and AI scientists, with the focus on helping organisations improve safety, security, and optimising operations.

Our products target video surveillance, secure access control, and occupancy monitoring. AerVision's real-time video analytics using advanced parallel computing (GPU) and embedded systems is making a paradigm shift in the domain.

Our unique advantage is our proprietary technologies ranging from a highly accurate and extremely fast biometrics engine to advanced artificial intelligence platform with machine learning capability.

We believe that in today's environment of heightened safety and security concerns, real-time situational awareness and touchless access control is critical to the success of any organisation.

Today, AerVision deploys many cutting-edge applications in a number of industries such as aviation, education, corrections, healthcare, government, commercial, mining, and retail.



### Real-Time Situational Awareness for Operational Efficiency and Enhanced Safety and Security

Security and operations control systems are getting increasingly complex and they produce more and more information. This can become increasingly challenging and costly to manage. What is needed is:

- The ability to pick up the status, attributes and dynamics of objects and events within an environment.
- Comprehending and being able to put things together in order to get a complete picture of what is happening in that environment.
- Projecting what near term developments can happen in the situation. We call this Real-Time Situational Awareness.

However, there are three main challenges posed by data explosion for realising real-time situational awareness: overload on the infrastructure, cognitive overload on humans in the loop, and dramatic increase in false positives and false negatives in identifying threat scenarios.

AerWatch® from AerVision Technologies addresses this by using real-time video analytics utilising proprietary advanced Artificial Intelligence processed on parallel computing (GPU) and embedded systems. With AerWatch®, you can effectively control large amounts of information from multiple sources within your operating environment, to ensure that the right information is available to the right people when and where needed, and that the correct action is taken promptly whenever unexpected situations occur.

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AerWatch® combines sensing and computer vision to automatically identify interesting objects and suspicious behaviours. It uses advanced Artificial Intelligence (AI) with deep Machine Learning (ML) to enable a range of functions including human and object detection with activity classification, single and multi-camera target tracking, recognition using biometric information or appearance, and monitoring crowd behaviour.

It is designed to be the central point of operating personnel's decision-making process. Designed to increase holistic awareness of your surroundings, the platform creates a powerful tool to significantly improve effectivity and responsiveness well beyond traditional video security systems.

It provides real-time situational awareness for enhanced safety and security.

AerWatch® is particularly designed to diminish the labour on the part of security operators. It brings numerous advantageous modifications to your surveillance systems. These modifications are only meant to fortify your security systems and make you safe within your walls.

# Real-Time Situational Awareness for Operational Efficiency and Enhanced Safety and Security

Once the intellectual burden is reduced, a security operator would be more efficient at his/her job. A peaceful mind tends to focus better. He or she will be more productive to show alertness at their daily duties. He or she will be able to monitor 50x more CCTV cameras than what is considered standard cognitive load.



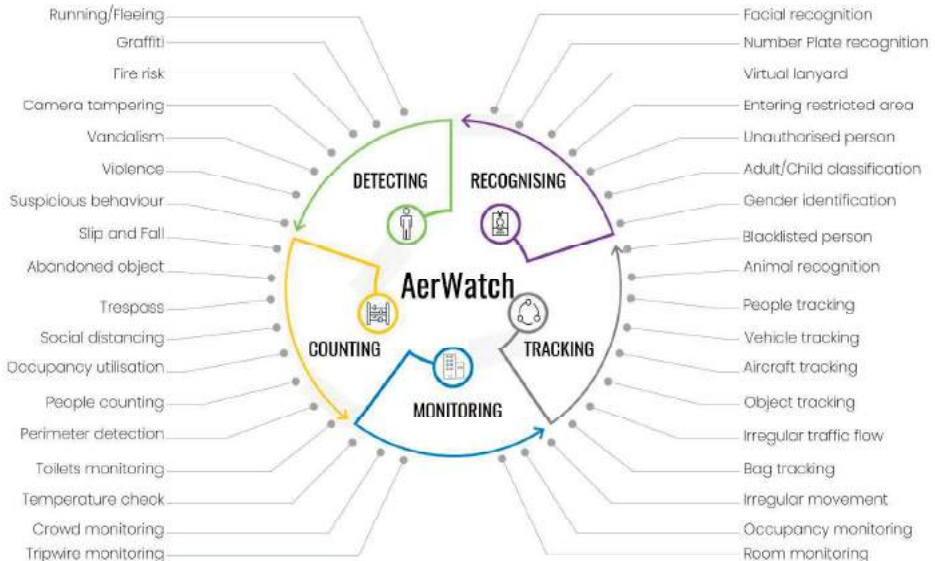
# AI Based Monitoring, Detecting, Recognising and Tracking Solution



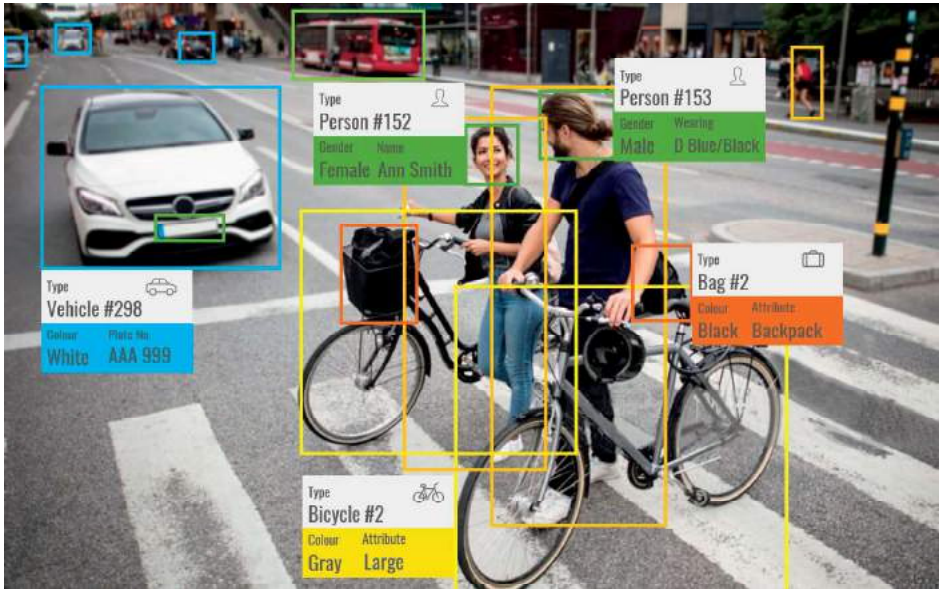
Lost objects	1 object – 40 min
Tracking	1 person – male
Facial Recognition	1 identified person
Crowd Movel using	95 people
Running	0 people
Loitering	1 person – 95 min
Bag Count	33 bags
Toilets	9 in Male Toilets 6 in Female Toilets

## AerWatch® Features

AerWatch® can automatically detect, recognise, track and monitor a wide range of objects, people, and events. It provides real-time dashboards showing the current situation along with historical statistics. AerWatch® AI-based technology is designed to operate automatically and, in most cases, in the background, giving security operators more time and freedom to “ignore” the normal events and people who are supposed to be at the facility and concentrate on strangers and possible threats.



# Precise Object Detection & Classification



## Detecting Features

AerWatch®'s powerful AI engine constantly learns what is normal in a CCTV video stream and looks for anything out of the ordinary as well as any pre-defined rule-based events. As soon as AerWatch® detects any event of interest, it creates an alarm on VMS security operators to mitigate.

The process of learning is constant, and the engine keeps adapting to the environment reducing any potential false alarm.

AerWatch® provides unprecedented insight into the behaviour of people in a given space. Examples include:

- For tracking and behaviour analysis of people across waypoints
- Average travel time between point A and point B
- Dwell and Queue time
- Accurate count of people In/Out at each way point such as an entry or exit
- Classification (Adult/Child/Pram/Trolley)

# Recognising Features

## Facial Recognition

AerWatch® Recognition provides accurate and real-time face identification and augments a virtual lanyard on the faces present in the video feed. Moreover, the system uses several algorithms to accurately identify any person of interest and raise alarm through the video management system.

The foundation of AerWatch®'s Recognition system is based on decades of research and development with several scientific breakthroughs in computer vision, artificial intelligence and deep learning. It has undergone many years of rigorous testing by a team of world-class biometrics and AI scientists and engineers.

AerWatch® Recognition uses multi-frame recognition which makes it truly video based. The system will process any video capturing device including CCTV streams in real-time to match against an existing database. Organizations can use their HR database images and manually add watchlist images. AerWatch® Recognition can process hundreds of video capturing devices.



## Number Plate Recognition

AerWatch® Number plate recognition can be used by organisations to keep track of authorised vehicles on the facility – whether it be making sure that only employee vehicles are in company lots, or identifying which cars are pulling into areas designated for employees only. When an unauthorised plate is detected, an alert can be sent. This sounds like a great way to make the most of human resources – because a human no longer needs to manually check and reference number plates.



# Tracking Features

Monitoring and behaviour analysis of crowds. Combination of appearance and identity-based tracking allows tracking within a camera view as well as between multiple cameras (inter camera view).



# Monitoring Features

## Social Distancing Monitoring

Due to the COVID-19 pandemic, it is now more important than ever before to make sure organisations have the ability to monitor accurately and in real-time their compliance with social distancing and occupancy limits.

With AerWatch® proprietary analytics software, organisations can comply with government occupancy limitation and social distancing regulations to offer their staff and visitors a safe environment. Furthermore, AerWatch® provides real-time occupancy monitoring and automated alerts anytime your facilities' occupancy levels reach the maximum allowable levels, enabling you to control how many people can enter and also adjust your staffing levels as required.



**Social Distancing Alert**



**Social Distancing Okay**



# Deployment

AerWatch® is a totally software-based solution that works as an add-on to existing CCTV monitoring and other sensor systems. It works in conjunction with Building, Security and Video Management Systems. It sits behind the scenes and the only interaction it has is through the VMS interface already used by CCTV monitoring room operators.

It is also important to note that AerWatch® can be used in such a way that it does not collect any more personal data than what has already been collected – rather, it makes more effective use of that data.

## AERWATCH

Real-time Situation Awareness for Enhanced Security and Safety

Monitoring - Detection - Recognition - Tracking

A.I Internet of Things (AIoT) Platform

Visualisation/Report / Recommendation

A.I Engines & Business Rules

Data Collection Layer (Edge or Cloud)

Video Management System (VMS) - Security Management System (SMS) - Building Management System (BMS) - Application Programming Interface (API)

## Key Differentiators

- Provides real-time alerts, allowing you or your security personnel to act immediately.
- Has multiple watchlist capabilities including whitelist and blacklist.
- It can be used to augment CCTV video stream in real-time with virtual lanyards to provide unprecedented situational awareness i.e. who is in a specific area, is it a visitor, an executive, a staff or a contractor
- Identifies precursor events, allowing for timely intervention before situations escalate.
- Compatibility with several VMS systems including Genetec, Milestone/SiVeillance and more.
- Load balancing on CPU and GPU cores, distributed on the network
- Simple API feature that allows for easy 3rd party software integration.