GANIMEDE

VIDEO CONTENT ANALYSIS PLATFORM

LEONARDO

ARTIFICIAL INTELLIGENCE AT THE SERVICE OF SECURITY

Security is not only a growing need in every sector, but has become an indicator of the quality of a service.
More and more sophisticated sensors are equipping surveillance system and generating massive amount of data that need to be analyzed and processed sometimes overwhelming the capabilities of security operators.
The development of new techniques based on artificial intelligence (AI), neural networks and deep learning in support of security system is becoming a key factor for effective solutions.
Leonardo has developed innovative platforms, secure-by-design, based on AI for the massive analysis of video and data.

MAKE SENSE OF VAST AMOUNTS OF VIDEO DATA

Nowadays is estimated that more than 1.5 trillion hours of video was captured globally by more than 200 million surveillance cameras.
The main part of that videos are never watched or played back, due to lack of time or resources.
As a result, security threats are missed and suspicious behaviors aren't noticed in time to prevent incidents.
AI-based video surveillance allows you to use the system proactively to:

- Analyze large volumes of video and obtain intelligent information by increasing detection, prediction and accuracy.
- Receive timely alerts on critical situations and improve security and crime prevention.
- Support the task of the control room operators by having more efficient use of resources.

GANIMEDE, THE INTELLIGENT VIDEO ANALYSIS

Ganimede is the Leonardo platform for the large-scale analysis of live and recorded data streams based on Deep Learning.
Ganimede is implemented exploiting Leonardo's extensive know-how in Video Analysis, in IT platforms and security, supported by competence centers specialized in artificial vision and deep learning.

KEY FEATURES

Ganimede Video Content Analysis platform enhances situational awareness and transform threat detections from a manual, resource-intensive operation into an efficient and automated process. It is designed and developed to:

- provide a unique platform for audio/video analysis
- have an unique framework deployable for data center, edge computing, automotive.

SCALABILITY AND FLEXIBILITY

The platform can support different usage patterns:

- an online video processing component for analyzing, recording and generating real-time alerts towards an event management platform.
- an offline video processing component for analyzing videos after events.

Ganimede can be deployed in different configuration supporting different workloads an operational contexts:

- Data center centralized architecture serving extended areas in a centralized architecture
- Edge computing where optimized bandwidth management and distributed autonomy is required, such as for intelligent applications in LTE/5G environments.

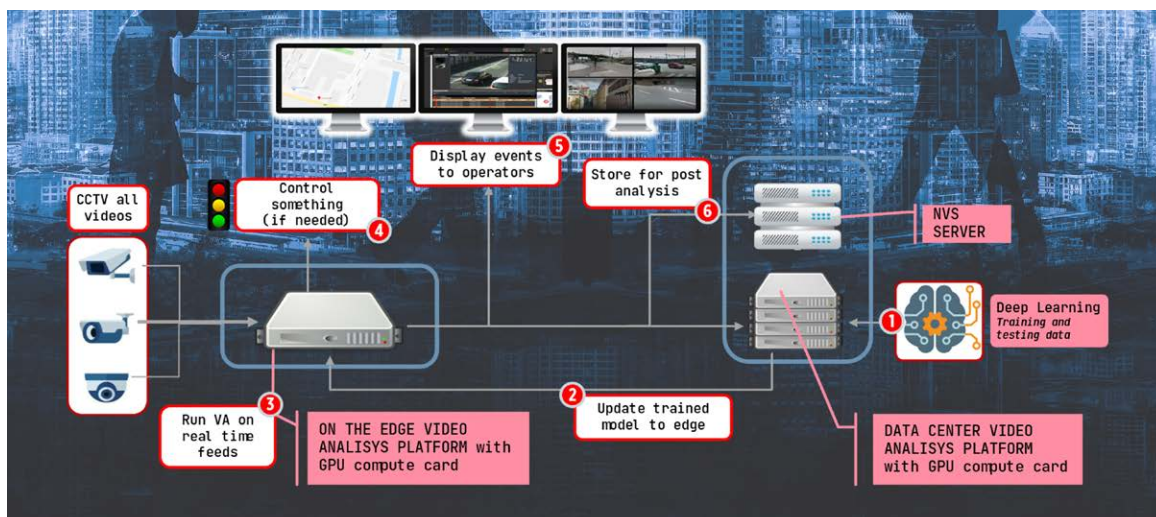Thanks to its flexibility and scalability features, users of the platform will be able to:

- Make the outcome of processed video available.
- Configure the sending of events associated with patterns detected by specific algorithms.
- Create tasks by dynamically allocating algorithms to configured video streams.
- dynamically allocate tasks based on available resources.

FUNCTIONAL MODULES

Ganimede administration is web based and provides basic both user-friendly features and detailed parameters for the most experienced system administrators.
The main functional areas includes:

- Configuration: to configure users, roles, CCTV cameras and video resources, video analysis algorithms, processes and specific elements for environment configuration.
- Dashboard: to monitor and manage system resources and active processes
- Events: to define events, alerts and endpoints (to which events can be sent).

THE ALGORITHMS

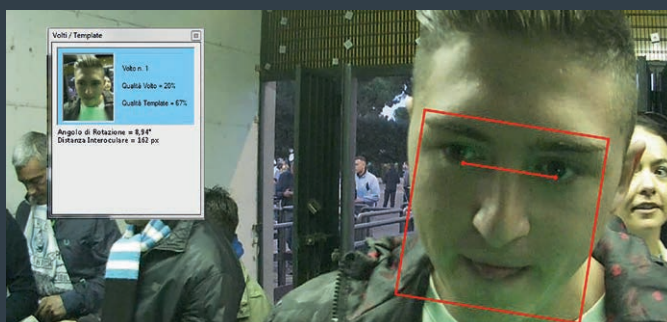Ganimede includes a set of algorithms that can be classified in:

- **Detection:** to determine the presence of a type of object or entity, for example a person or a car in form or color.

- **Classification:** to recognize and possibly identify, persons or cars belonging to a known database or according to an open world approach.

- **Identification:** to recognize the occurrence of an individual item (such as a specific face, plate, object) already made known to the system.

- **Counting:** to count specific objects in a single or in a sequence of frames.

- **(High/Low) Density estimation:** to estimate the population of objects present in an specific region of interest.
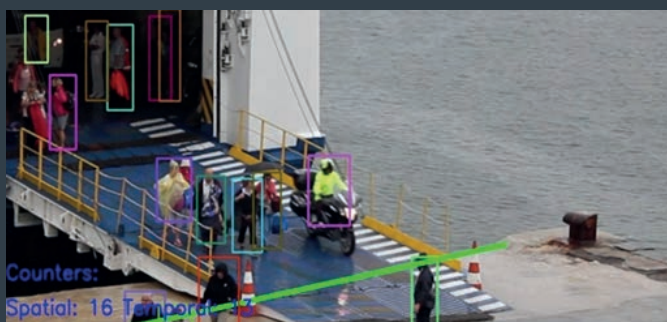

DETECTION
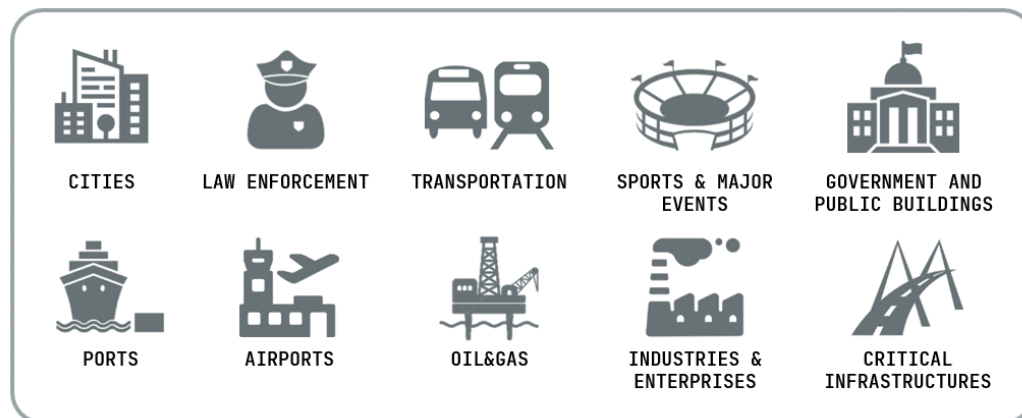

CLASSIFICATION

IDENTIFICATION

COUNTING

HIGH/LOW DENSITY ESTIMATION

A LEAP FORWARD IN SECURITY MANAGEMENT

- Advanced Deep Learning based Video Analytics for all the different contexts.
- Integration with the Leonardo unique Security & Safety Control Centre (SC2) platform
- API for easy integration with 3rd party VMS
- High flexibility and configurability with the intrinsic capability to exploit the existing CCTV infrastructure
- Powerful alerting solution with early warnings and real time alerts video and audio pattern recognition.
- Automated Security, Enhanced Safety, Efficient Operations
- More efficient use of staff and possibility to reduce costs for storage/servers.

LEONARDO CONVERGENT SECURITY ECOSYSTEM

The integration of Ganimede with the Leonardo security platform (SC2), cyber and communication (CSP) platforms creates a unique, global and innovative security solution for different sectors as:

CITIES   LAW ENFORCEMENT   TRANSPORTATION   SPORTS & MAJOR EVENTS   GOVERNMENT AND PUBLIC BUILDINGS

PORTS   AIRPORTS   OIL&GAS   INDUSTRIES & ENTERPRISES   CRITICAL INFRASTRUCTURES

OUR SECURITY ECOSYSTEM DOES WHAT NO HUMAN CAN DO: OUR EYES NEVER BLINK

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