



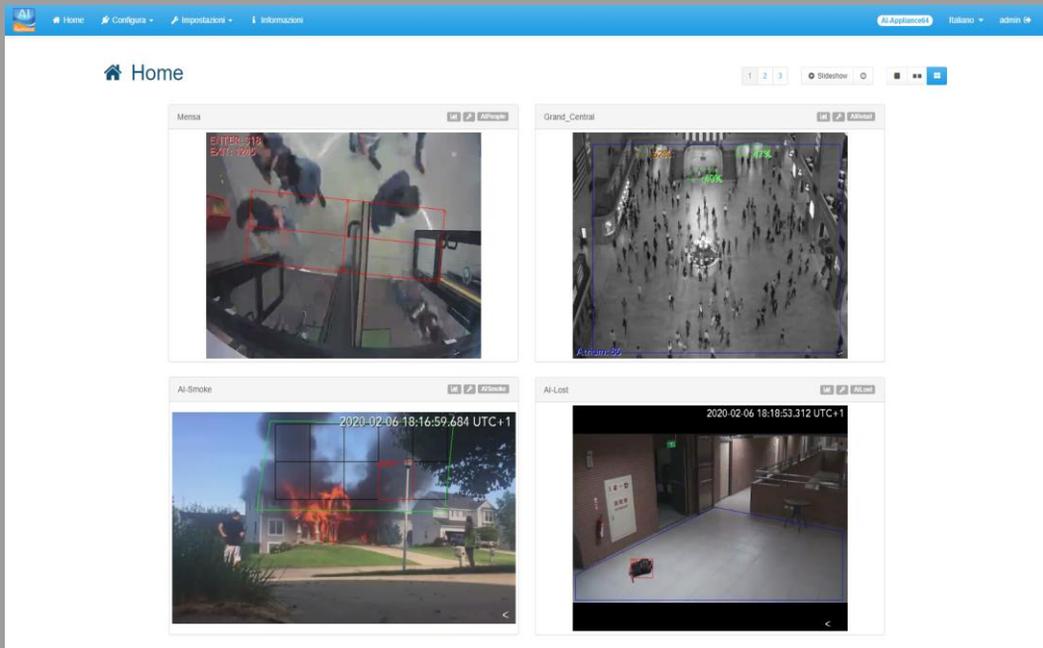
AI-SMART RETAIL



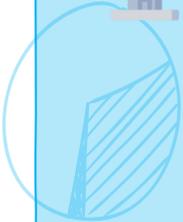
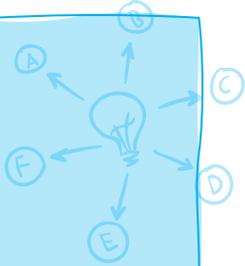
AI-SMART RETAIL

AI-SMART RETAIL includes all the plugins needed to monitor your point of sale, in the most universal sense of the term; it includes counting people at a gate, assessing the crowd occupying an area, the time density map as well as biometric profiling of people in the area.

APPLICATIONS

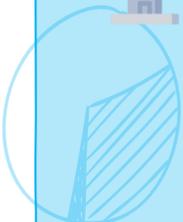
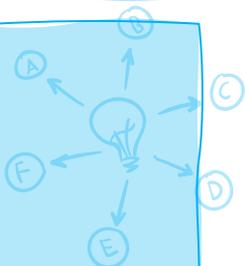


AI-SMART RETAIL



AI-PEOPLE

People Counting at the gate

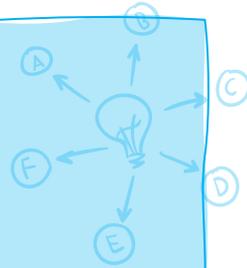
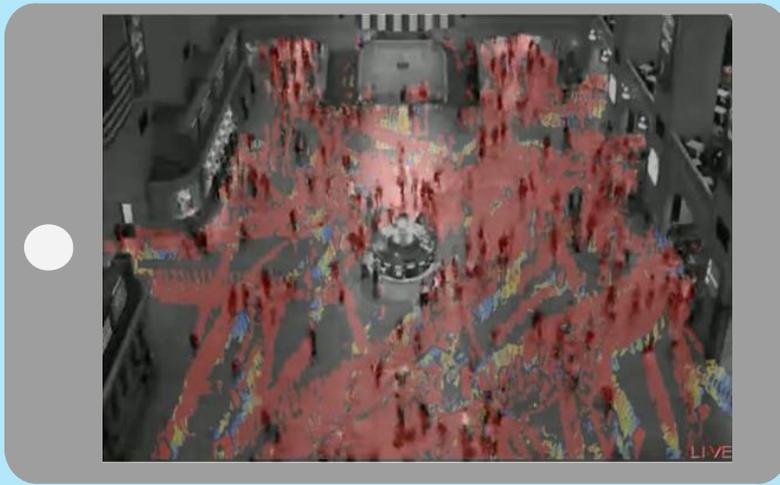


AI-CROWD-DEEP

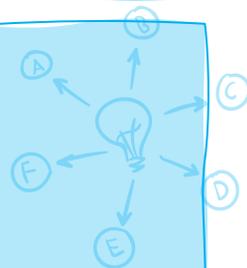
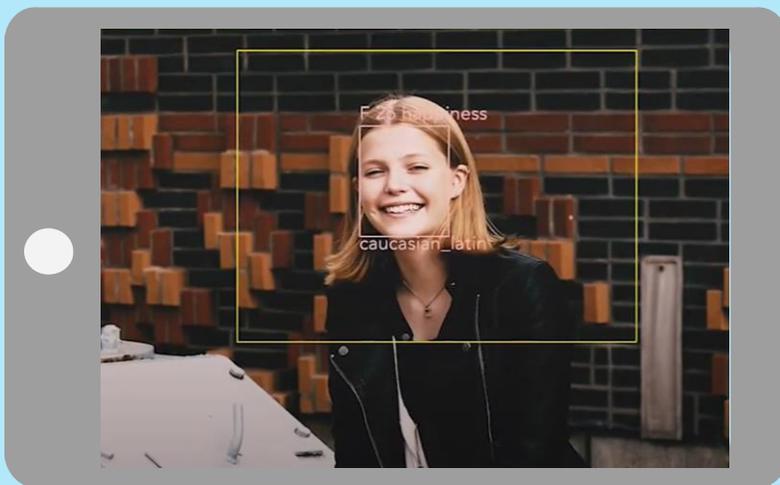
Monitoring of flows and behaviors of people in indoor and outdoor environments



AI-SMART RETAIL

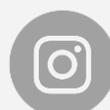


AI-HEAT
Heat Map



AI-BIO

Distinguish the gender, estimate the age and recognize the emotion using face analysis



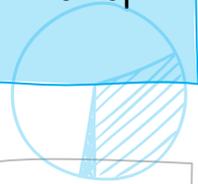


AI-PEOPLE

AI-PEOPLE is the video analytics app to count people at the gates.

The app doesn't limit the number of virtual sensors and can count multiple crossings in the same or different directions (using one sensor per direction), as well as people with backpacks, luggage or shopping trolleys.

The app is available in two versions: **AI-PEOPLE**, based on traditional video analytics algorithms that can work both indoor and outdoor, and **AI-PEOPLE-DEEP** using the most advanced detection algorithms based on deep learning capable of achieving an accuracy of 98% and designed only for indoor environments. Both apps require the use of a camera positioned in the top view.



AI-PEOPLE USE CASE



AI-PEOPLE is the video analytics solution designed to meet the needs of marketers. It can be used in buildings, museums, restaurants, shops, malls, airports and parks, but more generally in all those situations where it is essential to estimate the number of visitors over the of time.

In these same scenarios, **AI-PEOPLE** can also be used to estimate the number of people inside a room, a shop or a building and combined with the **AI-DASH-PRO** dashboard, to aggregate people counting data coming from multiple cameras installed at the entrances, and thus to assess possible overcrowding situations inside buildings.

The application of **AI-PEOPLE** is therefore twofold from a fundamental marketing tool to a powerful way of ensuring the safety of the area.



AI-CROWD-DEEP

AI-CROWD-DEEP is a video analytics software to analyze people and their behavior using the most advanced computer vision algorithms combined with deep neural networks.

The software can estimate the number of people within one or more areas of interest as well as counting people crossing virtual lines. It can also fire alarms in case overcrowd [e.g. the number of people present in the area of interest exceeds a customizable threshold].

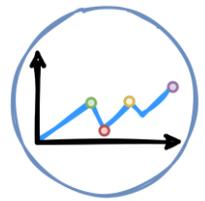
AI-CROWD-DEEP can also analyze people's behavior detecting loitering or those who are still for a given time or evaluate the distance among people and to verify the respect of social distances. The solution can be configured to fire alarms to other systems like Video Management Systems [VMS].

AI-CROWD-DEEP can, finally, provide the dwell time of each detected person to estimate the amount of time spent in the area, as well as identify the areas where people stay the most through a heatmap.

AI-CROWD-DEEP can be used in both indoor and outdoor environments.



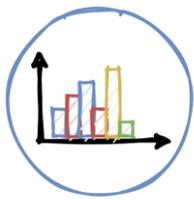
AI-CROWD-DEEP USE CASE: RETAIL



AI-CROWD-DEEP is the solution designed to meet the needs of buildings, museums, restaurants, shops, malls, airports, stations or cities, in order to make them smart environments.

AI-CROWD-DEEP is a valuable tool for marketing, in order to understand how visitors are moving around sales area as well as determining the most visited areas. In addition, the solution can help in managing checkouts by minimizing queue time and improving the customer experience. For example, it is possible, by estimating the number of people that are waiting, to alert staff to open a new checkout queue. Then, by counting people, calculating dwell time and producing the heatmap, **AI-CROWD-DEEP** provides information to understand the preferences of customers.

AI-CROWD-DEEP can also be used for people's safety purposes when used to avoid overcrowding in public spaces or environments.



AI-CROWD-DEEP USE CASE: SMART CITY

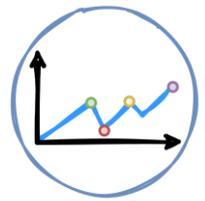


AI-CROWD-DEEP is the tool for public administrations that decide to exploit artificial intelligence to enhance the functionality of their systems, also using already installed video surveillance cameras.

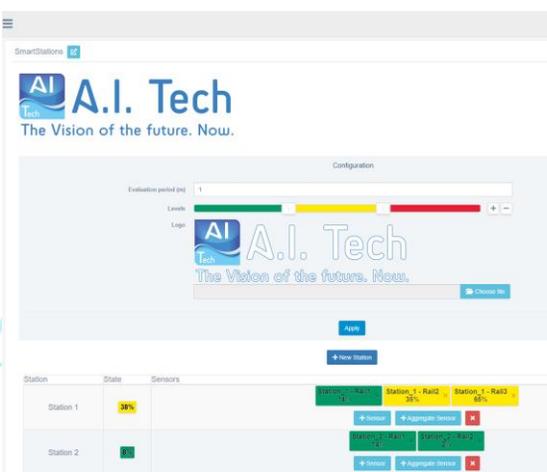
AI-CROWD-DEEP makes it possible to detect abnormal behaviors, such as people staying in an area for too long [loitering], or still people [e.g. for the detection of vandalism, such as graffiti]. It can also be a valuable support to detect potential hazards such as gatherings or situations where social distances are not respected.

Finally, **AI-CROWD-DEEP** makes it allow to respond to green energy needs, thanks to the possibility of customizing and automatically adjusting the light intensity of streetlights. For example, at nighttime we can set low brightness in areas where there are no people and maximum intensity where there are people passing by. A similar application can also be adopted within public offices, in order to provide for the switching on/off of lighting and ventilation systems.

AI-CROWD-DEEP USE CASE: TRANSPORTATION



AI-CROWD-DEEP can operate in outdoor environments, even in very crowded situations. In fact, it is the best tool for monitoring crowds on the platforms in a station or at the gates in an airport: it allows you to estimate the number of people entering, in order to determine peak times, as well as automatically identifying crowds, thus urging visitors to respect social distances where necessary.





AI-HEAT

Thanks to the use of the most advanced artificial vision algorithms, **AI-HEAT** analyses the movement of objects moving within the scene and identifies the areas of greatest interest [hot spots] and the areas of least interest [dead areas], this is achieved thanks to a heatmap-based visualization. **AI-HEAT** can be used in both indoor and outdoor environments.



AI-HEAT USE CASE



AI-HEAT is a video analytics solution designed to meet the needs of marketers, for example in buildings, museums, restaurants, shops, shopping centers, airports and parks, but more generally in all those situations where you want to know how customers move around your facilities and which points of the different areas are of most (and least) interest.

For example, it can be used to know the most visited aisles or shelves in a supermarket, the most crowded shops in a shopping center, the paintings near which people stop for the longest time or in general of greatest interest to visitors in a museum.

AI-HEAT, combined with a dashboard for data management and visualization [e.g. **AI-DASH-PRO**], then allows the heatmap to be visualized in the form of an image: the 'background' of the camera scene [i.e. the scene without any moving objects] will be overlaid by colored regions. Typically, the warmest colors [red, orange, yellow] represent the 'hot zones', i.e. those areas most frequented [and therefore of greatest interest to visitors]. Vice versa, as the colors become progressively cooler [green, light blue, blue] the areas within the picture represent regions of the facility that are of decreasing interest, leading to the so-called 'dead areas'.



AI-BIO

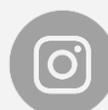
AI-BIO is the video analytics application able to detect faces and distinguish the gender, estimate the age and recognize the emotion (in a specific instant of time) of one or more persons using deep neural networks. In addition, **AI-BIO** can provide the dwell time of a person in front of the camera.

The analysis of the face to anonymously extract biometrics features is performed through an advanced artificial intelligence technique based on multitask learning.

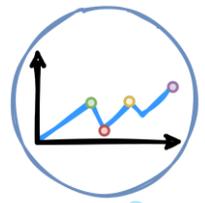
The application requires that the camera is mounted at a height of about 1.80 meters, so that people's faces are captured frontally.



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AI-BIO USE CASE



AI-BIO is the video analytics solution designed to meet the needs of marketers, e.g. in buildings, museums, restaurants, shops, malls, airports and parks, but more generally in all those situations in which it is essential to know both the number of people crowding your sales area and to profile your customers.

This information allows, for instance, a store chain which is launching a new product to know the target audience that may be interested and their reaction while looking at the product for the first time. **AI-BIO** is also a key solution for *Digital Signage*.

Today the monitors displaying advertising content are becoming very popular; however, they always show the same messages in a loop without any customization.

AI-BIO allows to maximize the effectiveness of advertising campaigns, thanks to the possibility of showing content that suits the person who is looking at the monitor.

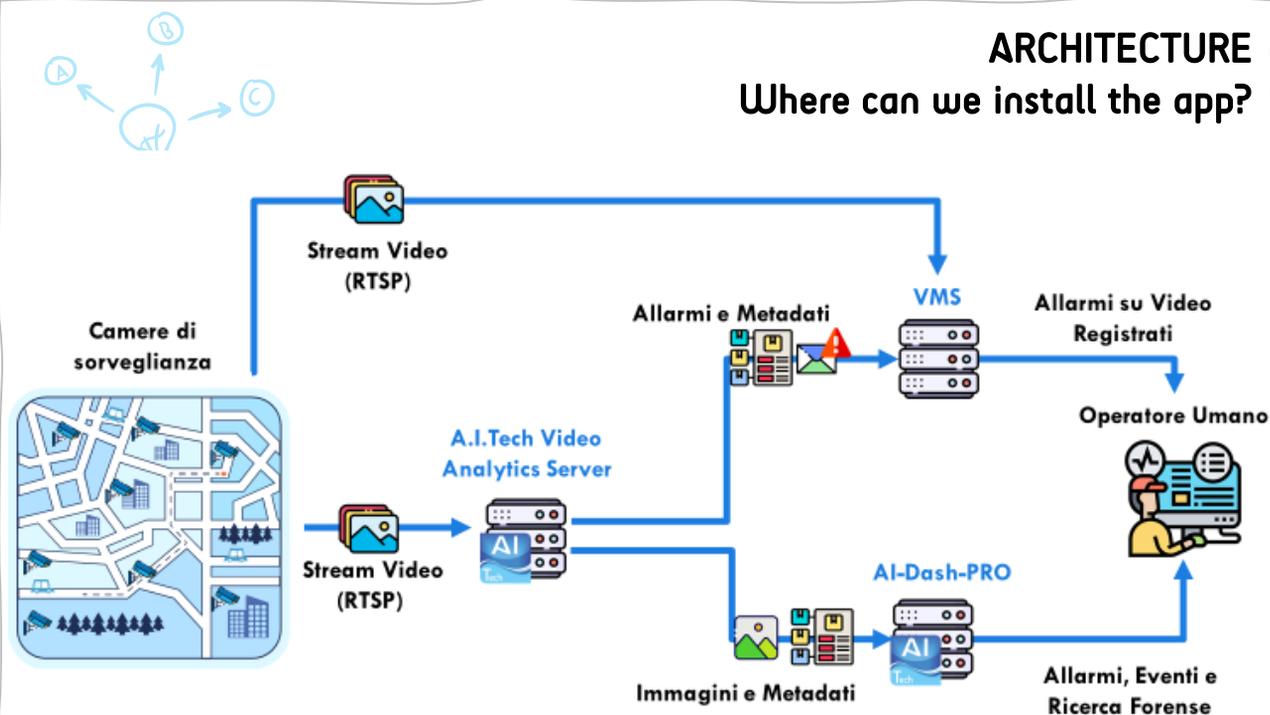
In such a scenario, it is extremely useful to assess the impact and the effectiveness of advertising content by understanding the emotion of a person that is watching it and evaluating the dwell time.



AI-SMART RETAIL

ARCHITECTURE

Where can we install the app?



The detailed list of specific compatible platforms can be reached via the link on the right.



Edge



Embedded



Server

INTEGRATION

Where can we notify the events generated by the app?

Events can be sent to external servers using over 20 different mechanisms, which include third-party VMSs, standard protocols [such as HTTP, FTP, MODBUS and MQTT] and also A.I. Tech proprietary protocols, which allow the notification of events to the dashboards of A.I. Tech. More information via the link on the right.



AI-SMART RETAIL



AWARDS

CIOApplications ^{europa} TOP 25
ARTIFICIAL INTELLIGENCE
SOLUTION PROVIDERS - 2017

THE MOST **10** INNOVATIVE
ARTIFICIAL
INTELLIGENCE
SOLUTION PROVIDERS
2018



A.I. Tech
2020 Award Winner
Most Innovative in Video Analytics

