AI-APPLIANCE-DEEP

Deep Learning in one hand

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AI-APPLIANCE-DEEP

Which is the hardware required to run video analytics software?
A typical answer is that achieving a high accuracy requires large, expensive and power demanding server equipped with discrete GPUs; which will have a high cost both in the realization and in the operational phase of a system.

Nowadays, A.I. Tech offers an alternative solution: **AI-APPLIANCE-DEEP**, an embedded plug-and-play solution. A small low consumption device equipped with a NVIDIA GPU delivered with all the video analytics applications of A.I. Tech preinstalled and licensed. The number and kind of licenses can vary on the base of the specific device version you buy.

AI-APPLIANCE-DEEP is a ready-to-use solution to have in your hands the latest technology based on deep learning, the last frontier of artificial intelligence.

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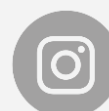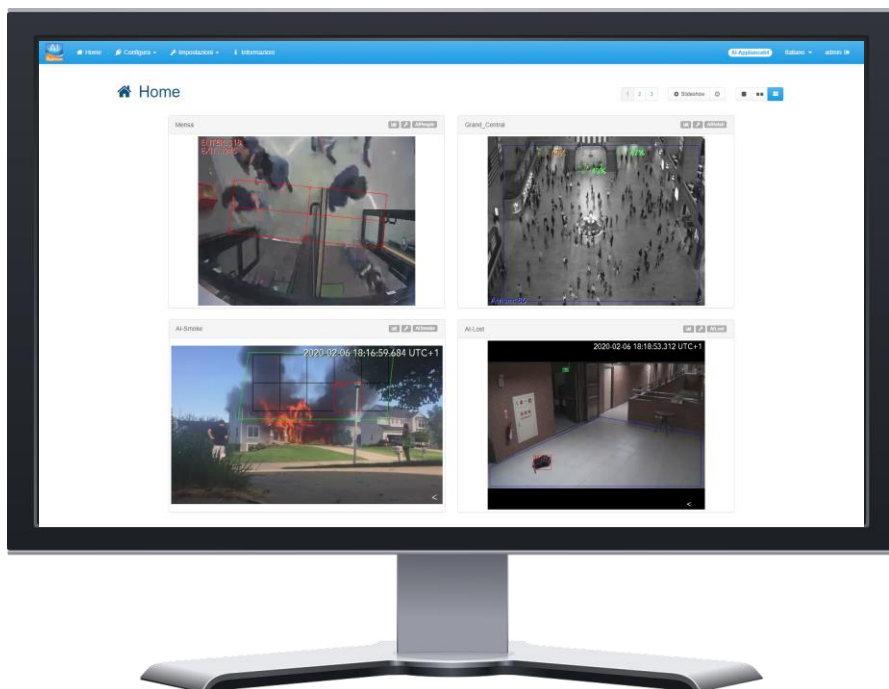
AI-APPLIANCE-DEEP

Strengths of AI-APPLIANCE-DEEP?

W

WHAT YOU WANT

Video analytics solutions based on the latest deep learning methodologies are already delivered within the **AI-APPLIANCE-DEEP**. Over 15 different products (including apps and bundles) available to help you to build the best solution to meet the needs of different markets, including retail and digital signage, smart cities and smart roads, smart parking, smart hospitals and intelligent video surveillance

W

WHERE YOU WANT

AI-APPLIANCE-DEEP can be installed anywhere, indoors and outdoors, thanks to its extremely small size and limited power consumption. It becomes the ideal solution both for revamping existing systems and for new ones, especially when you have small and medium-sized installations, or in case large installations where a decentralized architecture is required. The embedded GPU, combined with the strong optimization of the A.I. Tech applications, allows you to simultaneously process up to 32 streams (based on the specific version chosen or on the application used for the analysis).

W

WHEN YOU WANT

The processing of the stream can be programmed through a simple and intuitive weekly calendar, or the analysis can be dynamically activated, and deactivated, event based. Indeed, it is possible to dynamically start the processing (via HTTP requests) of an application when an external event occurs. In addition, it is possible to use the same device to detect intrusion on outdoor cameras, through AI-INTRUSION, during the night, and using AI-CROWD-DEEP during the day, on other cameras, to estimate the number of people or detect gathering.

AI **A.I. Tech**
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AI-APPLIANCE-DEEP
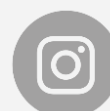
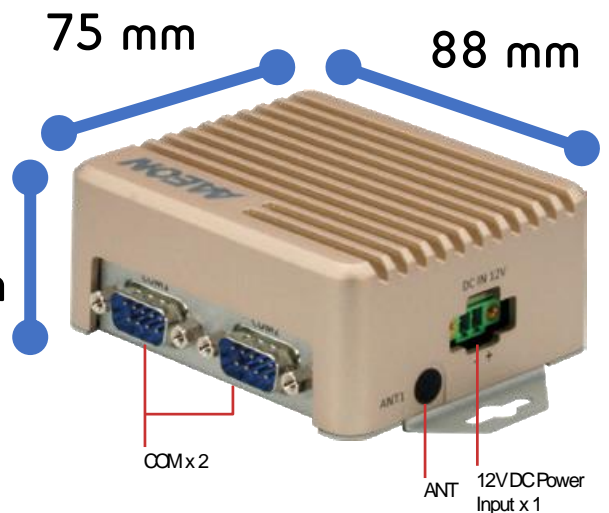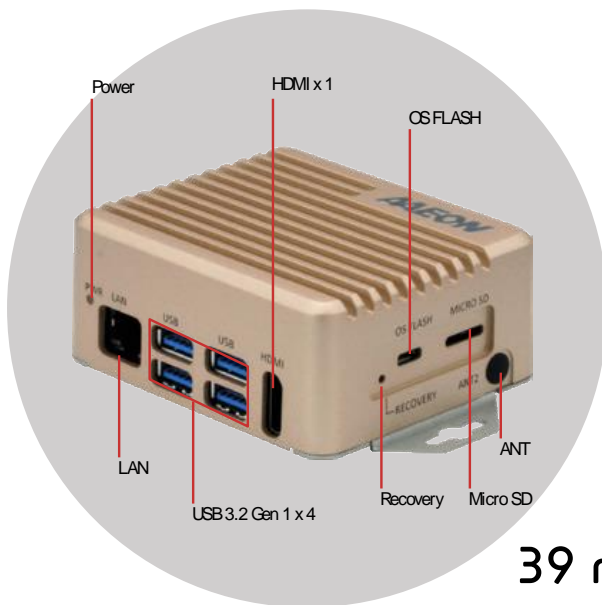| Mechanical & Environmental	Size (L x P x A): 88 mm x 75 mm x 39 mm Storage Humidity: 95% @ 40°C, non-condensing Anti-Vibration: 3 Grms/ 5 ~ 500Hz/ operation Certification: CE/FCC class A
Power Supply	12Vdc w/ 2-pin terminal block
System	GPU: NVIDIA Jetson Storage: 16GB eMMC MicroSD Slot x1 USB: 3.2 Gen 1 x 4 RS-232 x 2 Ethernet: 10/100/1000Base-TX x 1

Power   HDMI x 1

OS FLASH

LAN

USB 3.2 Gen 1 x 4

Recovery   Micro SD

ANT

75 mm   88 mm

39 mm

COM x 2

ANT   12V DC Power
        Input x 1

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AI-APPLIANCE-DEEP

AI-APPLIANCE-DEEP is available in different versions, to be chosen according to your needs.

The **AI-APPLIANCE-M** and **AI-APPLIANCE-L** versions are modular solutions, which can be configured to meet the needs of a projects or customers. It is the ideal solution if you know in advance which kind of analysis is needed (eg: *AI-INTRUSION*, for intrusion detection) and the number (eg: 8 streams) of video streams to be processed simultaneously.

It is possible to buy the needed version of the device (M or L) and selected which video analytics applications to use successively.

For example, it is possible to activate up to 2 streams of the AI-RETAIL-DEEP (for people counting, crowd and overcrowd estimation or detection of social distance violations) on AI-APPLIANCE-M, and up to 5 streams on AI-APPLIANCE-L. Differently, on the same hardware, it is possible to process up to 16 streams of AI-INTRUSION (for intrusion detection) on AI-APPLIANCE-M, and up to 32 streams on AI-APPLIANCE-L.

The maximum number of streams that can be processed simultaneously depends on the specific video analytics application used; please, see below to get more details about the maximum number of streams.

AI-APPLIANCE-DEEP

Application	AI-APPLIANCE-M	AI-APPLIANCE-L
AI-BIO	1	2
AI-CROWD-DEEP	2	5
AI-FACEDETECT	8	16
AI-FIRE	6	12
AI-INCIDENT-DEEP	1	2
AI-INTRUSION	16	33
AI-LOST	18	40
AI-LPR	1	1
AI-MASKING	23	42
AI-PARKING	4	8
	Note: A maximum of 8 sensors can be used for each application (8x4=32 and 8x8=64). If the number of sensors (per application) is lower, the number of applications can be increased.	
AI-PEOPLE-DEEP	2	5
AI-PPE	2	5
AI-ROAD3D-DEEP	1	2
AI-SMOKE	2	3
AI-SPILL	18	30
AI-VIOLATION	1	3

Bundle	AI-APPLIANCE-M	AI-APPLIANCE-L
AI-FIRE+	1	2
AI-RETAIL-DEEP	2	5
AI-SECURITY	1	1
AI-TRAFFIC-DEEP	1	2

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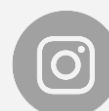
AI-APPLIANCE-DEEP

When the required video analytics functionality is not known a priori, or you want to dynamically activate applications when needed, consider the solutions shown below. It is possible to run AI-INTRUSION at night on the cameras outside the building, and AI-PEOPLE during the day on the cameras inside, using a single license.

The different versions, that are shown below, allow to use of a maximum number of video analytics applications according to the selected version. The limit is on the maximum number of streams that can be processed simultaneously, but not on the number of devices connected.

All versions allow to use all the video analytics applications based on deep learning, except for AI-TRAFFDEEP, available only with AI-APPLIANCE-DEEP-TRAFFIC1 (single license) and AI-APPLIANCE-DEEP-TRAFFIC4 (4 licenses). In all the cases, the maximum processing resolution allowed is 4 CIF.

|	
AI-APPLIANCE-DEEP1	It offers the possibility to activate a maximum of 1 app among those mentioned below (excluding AI-TRAFFIC-DEEP).
AI-APPLIANCE-DEEP2	It offers the possibility to activate a maximum of 2 apps among those mentioned below (excluding AI-TRAFFIC-DEEP). It should be noted that, on all streams, the same app must be activated simultaneously.
AI-APPLIANCE-DEEP4	It offers the possibility to activate a maximum of 4 app among those mentioned below (excluding AI-TRAFFIC-DEEP).
AI-APPLIANCE-DEEP5	It offers the possibility to activate a maximum of 5 apps among those mentioned below (excluding AI-TRAFFIC-DEEP). It should be noted that, on all streams, the same app must be activated simultaneously.
AI-APPLIANCE-DEEP-TRAFFIC1	It offers the possibility to activate a maximum of 1 app among those mentioned below.
AI-APPLIANCE-DEEP-TRAFFIC4	It offers the possibility to activate a maximum of 4 apps among those mentioned below.

APPLICATIONS

AI-APPLIANCE-DEEP can run different video analysis applications (both bundles and plugins) simultaneously, among those listed below.
Thus, it is possible to analyze the stream of a single camera using different applications or to process multiple streams from different cameras with the same application or mix different combination of streams and applications. The limit is the maximum number of application working at the same time, that is related to the specific version.
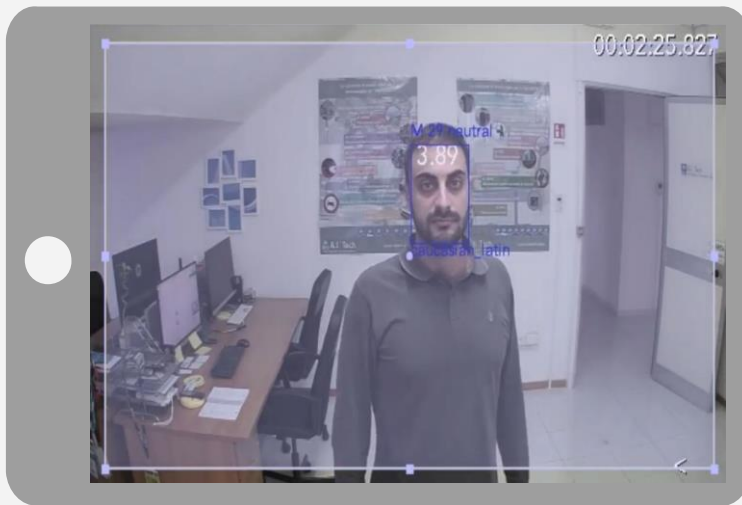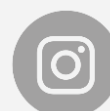

AI-BIO
Face analysis to recognize gender and emotion and estimate the age
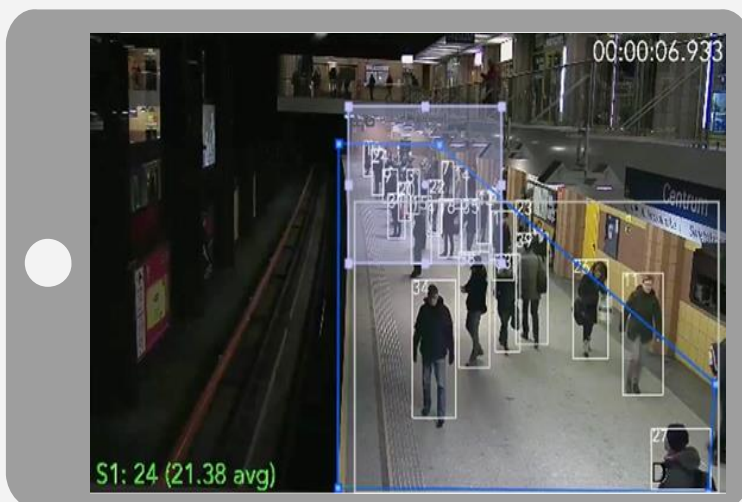
AI-CROWD-DEEP
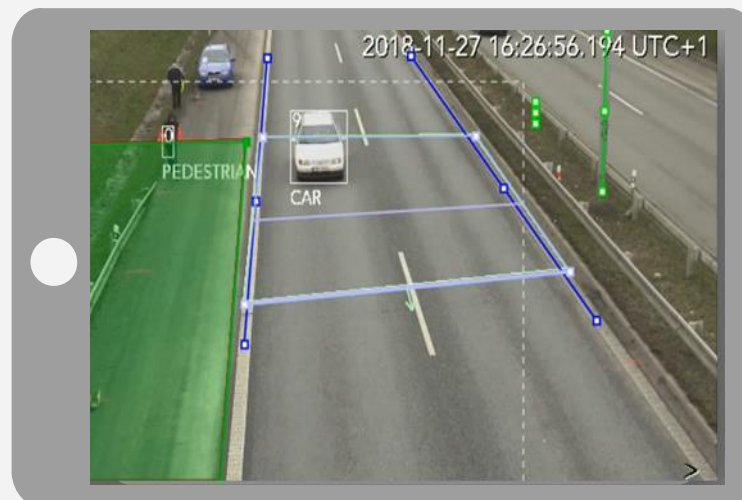
Crowd estimation and overcrowding detection

AI-APPLIANCE-DEEP
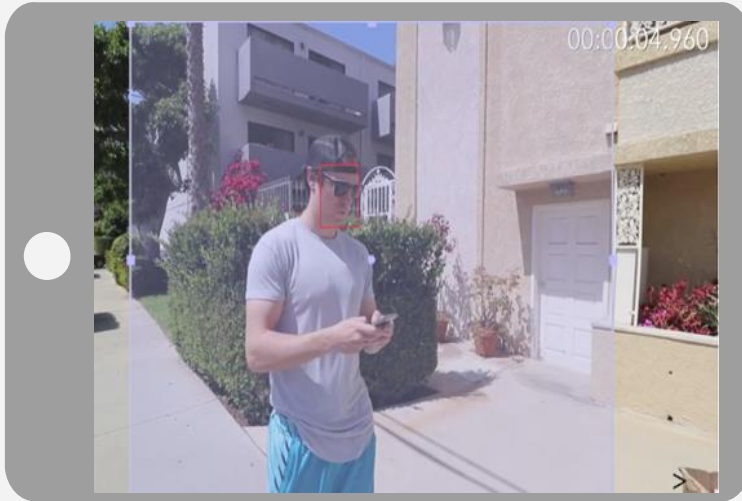
AI-FACEDETECT
Face detection with and without mask

AI-FIRE
Flame Detection

AI-INCIDENT-DEEP
Automatic Incident Detection (AID)

AI-APPLIANCE-DEEP

AI-INTRUSION
Intrusion Detection

AI-LOST
Detection of abandoned objects

AI-LPR

License Plate Detection and Recognition

AI-MASKING
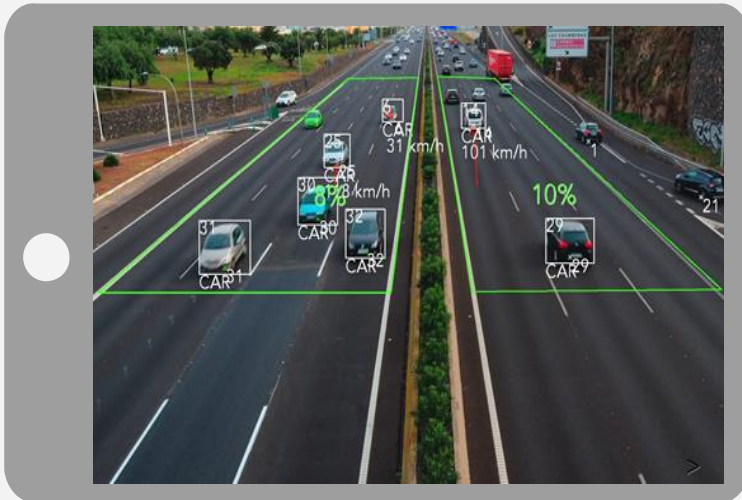
Masked live stream

AI-PARKING

Parking Monitoring

AI-PEOPLE

People counting

AI-APPLIANCE-DEEP

AI-PPE
Detection of workers not wearing personal protective equipment (PPE)

AI-ROAD3D-DEEP
Vehicle counting and classification, color and speed detection (average and above)
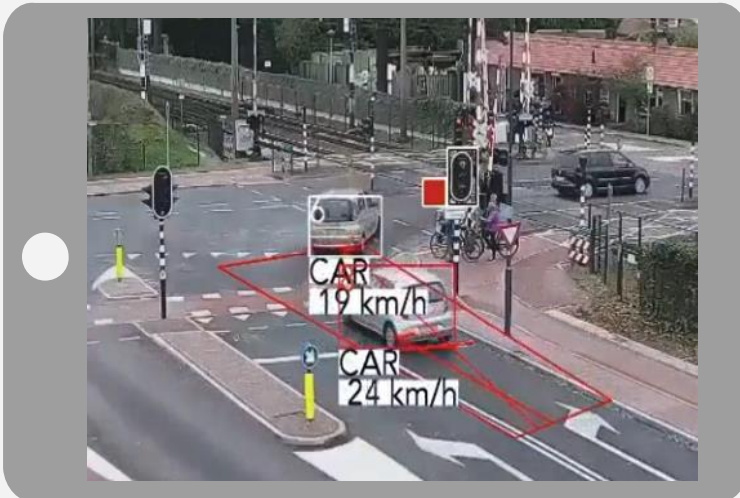

AI-SMOKE
Smoke Detection

AI-SPILL
People fall detection in unattended areas

AI-VIOLATION
Traffic red light violation detection

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AI-APPLIANCE-DEEP can manage both plugins and bundles in the same way. Bundles are software packages including the functionality of more applications that allow simultaneous activation on the same stream.
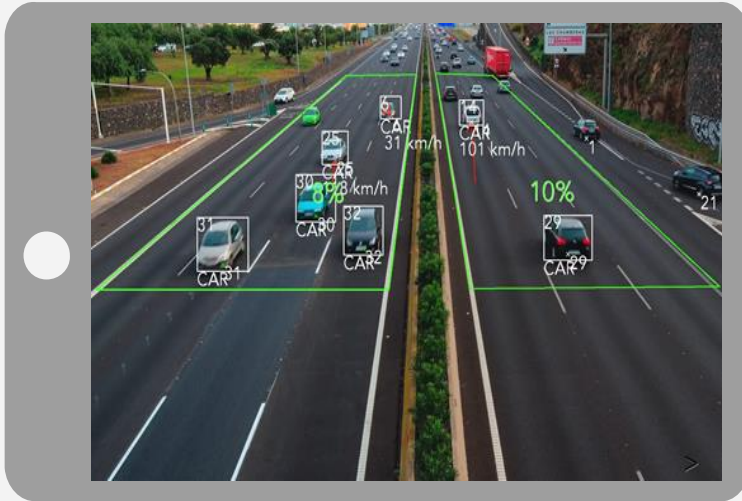

AI-FIRE+
Fire and Flame Detection

AI-RETAIL-DEEP
People counting, crowd estimation, gathering, social distance assessment

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AI-TRAFFIC-DEEP
Bundle including
AI-ROAD3D-DEEP
and
INCIDENT-DEEP

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