neural Labs
The traffic analytics company!

Version: 250710

Neural Orchestr[ai]tor ®

Video analysis for mobility

Software

Neural Orchestr[ai]tor® is a video analysis solution for traffic and mobility monitoring. Using Deep Learning techniques, it analyzes the scene by recognizing actors, individualizing and classifying them to track each of them, storing their trajectory.

The actors that it analyzes, tracks, and counts according to their category are:

- Trucks
- Cars
- Motorcycles
- Guns
- People
- Buses
- Animals
- Bicycles
- Electric scooters
- Vans
- Smoke

In real time, it also evaluates the behavior of these actors by automatically detecting an infinite number of incidents (AID) and traffic infractions, being able to analyze up to five lanes per camera or more.

Neural Orchestr[ai]tor is compatible with ONVIF cameras and even PTZ ones regardless of their make or model and can be integrated with Neural Server or third-party software via SDK.

Smart Cities & ITS

Security

- Guns detection
- Detection of multiple occupants of motorcycles, bicycles or electric scooters
- Loitering detection
- AID (*Automatic Incident Detection*)

Mobility

- Traffic density: moving, heavy or stopped
- Queue lengths
- Objects on the road (abandoned or fallen)
- Smoke detection or reduced visibility
- Counting actors according to their classification
- Surveillance of urban furniture

Traffic & Sanctions

- Traffic infractions: improper pedestrian crossing, failure to respect the zebra crossing, vehicles circulating in a forbidden direction, improper turning, intersection blockage, running the red light...
- Vehicles at abnormal speed
- Self-learning function / Automatic incident detection

These are some examples of applications, but there are countless more to be programmed.

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Neural Orchestr[ai]tor®

Specifications

Tracks and **counts** actors by category

Incident Detection	Events
Traffic Infractions	Improper pedestrian crossing, failure to yield at zebra crossings, driving in a prohibited direction, illegal turning, running a red light.
Traffic Density	Moving, heavy, or stopped traffic; queue lengths; pedestrians and objects on the road (abandoned or fallen).
Speed	Vehicles at abnormal speed.
Occupants	Multiple occupants on motorcycles, bicycles, or electric scooters.
Reduced visibility	Reduced visibility and smoke detection.

Integration

Neural Orchestr[ai]tor® integrates with the Neural Labs Solutions Suite. It works with Neural Server for license plate recognition, sanctions proposals and vehicle attributes detection:

IIntegration	Detects
Neural Server	Make: Toyota, BMW, etc.
	Model[1]: Yaris, Clio, 3 Series, etc.
	Color
	Speed
	Classification: car, motorcycle, bus, truck and van
	Country

Neural Orchestr[ai]tor® complete solutions

Neural Orchestr[ai]tor® supports several camera models and industrial computers, ask us about the different possibilities, or choose Neural Orchestr[ai]tor® complete software and hardware solutions.

Select this option for maximum compatibility and performance, in addition to the Neural Labs seal of quality. These complete solutions are tested by our technical team according to the highest quality standards and include industrial computers or cameras with the embedded solution.

[1] Available in selected countries

Neural Orchestr[ai]tor®

Neural Ghost Orchestr[ai]tor®

Neural Ghost Orchestr[ai]tor® is the optimal solution to obtain Neural Orchestr[ai]tor® functionalities in the camera itself, without the need for an external computer. It offers:

- Dynamic and static counting of:
  - Actors circulating in concrete areas
  - Vehicles on avenues
  - Pedestrians on the sidewalk
- Speed calculation of:
  - Any actor
  - Several actors in the same image
- Automatic Incident Detection (AID)

Technical Specifications

Camera sensor	1.6Mpx 1/3" CMOS
Lens	2.8-12mm
Processor	Embedded Quad-core Intel® ATOM

Lighting	Strobe IR 8 LEDS NIR at 850 nm
Light angle	20°
Light modes	Strobe and continuous

Time calibration	NTP/STNP or GPS (optional)
Power supply	22-52VDC (48VDC recommended) or 8-32VDC
Protocols	RDP, NTP/STNP, SNMPV2, RS232, RS485
Operative range	Temperature -40°C to +85°C

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Neural Orchestr[ai]tor®

Technical Specifications

Product dimensions	228x144x112mm
Packaging dimensions	300x210x300mm approx.
Product weight	3 kg
Packaging gross weight	5.75 kg approx.

Warranty	3 years (extendible)	
Storage	64GB eMMC5.1 Flash for OS	1 x 256GB M.2 SSD (optional up to 2 TB)
Network port	1x Giga Ethernet port	
Serial port	1x RS485 isolated	
USB port	1x USB2.0 for maintenance	

GPU	Integrated for Deep learning algorithms INT8 4TOP
Video coding	H.264 4K@50fps, H.265 4K@50fps
Housing	Rugged metallic, fanless, IP66 + IP68 rated | IK10
Double filter	IR-cut (day) + All spectrum (night)

Processing units

There are several Neural Orchestr[ai]tor® complete solutions that include processing units to be selected according to the number of cameras required by the project.

- Kit Orchestr[ai]tor®: Industrial computer and Neural Orchestr[ai]tor® licenses for up to 2 cameras.
- Neural Ai Unit: Several processing unit options for up to 20 cameras.
- Neural Ai Server: Server for up to 50 cameras.