L3CAM

## Conceived to eliminate false alarms

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At a glance

- Integrated camera system composed by 3 imaging modes:
  - High-resolution and solid-state 3D LIDAR
  - CCTV camera
  - Thermal camera
- Embedded data fusion in-house calibrated
- Embedded AI perception software for human detection and tracking
- Designed to eliminate false alarms through multimodal image analysis
- Stable in all weather conditions (rain, snow, fog, dust and wind)
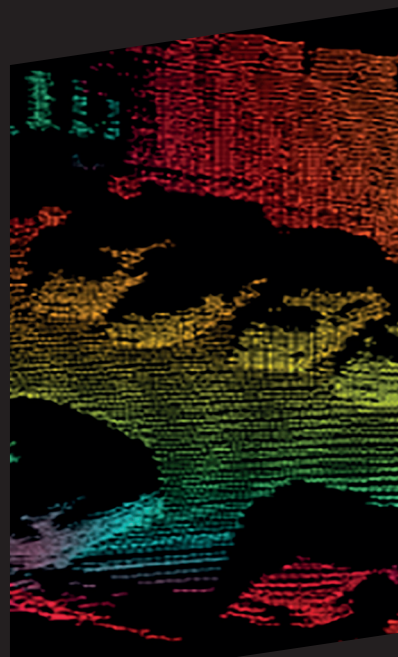
Why 3D LIDAR?

- Stable in complex environments with people, buildings and vehicles
- Fully compatible with metallic and small cross-section objects
- Insensitive to illumination conditions
- Geometrical info is used to identify objects according to its size at any distance. That solves aspect ratio issues typical from 2D imaging

Why multicamera fusion?

- Perception AI eliminate false alarms thanks to multimodal imaging
- Redundancy guarantees unprecedented robustness and reliability
- Complementary imaging technologies make the system reliable in all scenarios regardless of object type, size, material or weather conditions

Congruent data fusion

- L3CAM is based on an **Integrated** and **Early** data fusion approach. That makes the camera combination result fully congruent and boosts performance at the latter AI perception software

- Early data fusion overcomes issues related to the object level approach
  - No parallax issues
  - Safer and more reliable
  - Higher robustness at the later AI

	DETACHED	INTEGRATED
	The camera are placed in different locations	Cameras are integrated into the same housing
Mechanical alignment	Performed by the user	Set in factory
Optical calibration	Performed by the user	Set in factory
Software integration	Complex, completed by the user	Set in factory
Image fusion	Performed by the user	Set in factory
Parallax issues	Very likely	No
Mech. misalignments	Very likely	No
Recalibrations	Very likely	No
Installation cost	High	Minimum

L3CAM early data fusion approach

Lidar	→		→	
RGB	→	Data fusion	→	AI perception
Thermal	→			
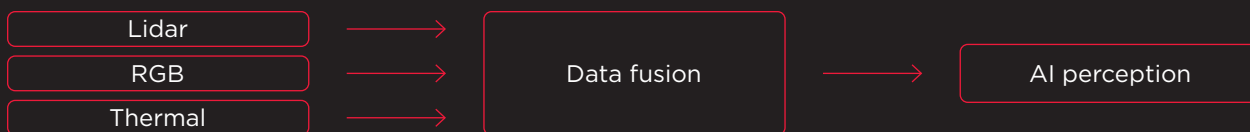
Embedded Perception AI

- Unprecedented stability and robustness

- Neural network pretrained to detect humans

- Other types of objects are possible under customer demand

- Close to zero false alarm rate in any environment

- Embedded inside the sensor casing

- Ultralow latency: real-time execution boosted by multicore GPUs

- Output data types:
  - Alarm messages
  - Real-time images from any sensor

Use cases: where false alarms are not allowed

Crowd analytics

Access control

Unattended control centers

Railway: human detection on rail tracks

Perimeter protection of critical infrastructures

On-site safety

BEAMAGINE

About us

At Beamagine we are committed to the development of LIDAR and imaging systems to the highest possible industrial standards. This implies the combination of high-tech expertise in optomechanics, electronics and software due to the nature of our products, which require careful prototyping and industrialization of high-technology products.

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