

PRESENTATION

# IT Digitiz-it

**ARTIFICIAL INTELLIGENCE AT THE  
SERVICE OF MARITIME AREAS**





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# SUMMARY

Presentation

## ARTIFICIAL INTELLIGENCE AT THE SERVICE OF MARITIME AREAS

A PARTNERSHIP PROJECT OF :

**IT Digitiz-it**



 BSB AI



# TECHNOLOGICAL INNOVATION TO SUIT YOU

Our technology is based on computer vision, an Artificial Intelligence field that allows computers to "see".

Our image databases are continuously growing, and our algorithms are frequently trained with millions of examples and image data annotated by humans, in order to detect and identify various types of objects. This identification is based on a machine learning and deep-learning process, which constantly improves its performance by accumulating different experiences.

This technology is already adapted to the surveillance of marine protected areas, through the EYSEEA AMP project, and navigation assistance with the anti-collision system for boats, through the OSCAR product, already commercialized.

**This technology allows detection, identification and tracking of floating objects in maritime zones which ideal to reinforce the surveillance and protection of strategic areas and can be adapted to different purposes**



## VISION

Unit that consists of a combination of thermal and optical cameras that capture an extensive area in video

## COMPUTER

Consisting of processors and software for real-time video analysis, using algorithms based on artificial intelligence



## APPLICATION

Available for iOS, Android and Browsers. Provides access to the latest detections, remote system management, alerts and real-time images



## CASE STUDY: OSCAR

### DETECT, IDENTIFY AND DEFLECT

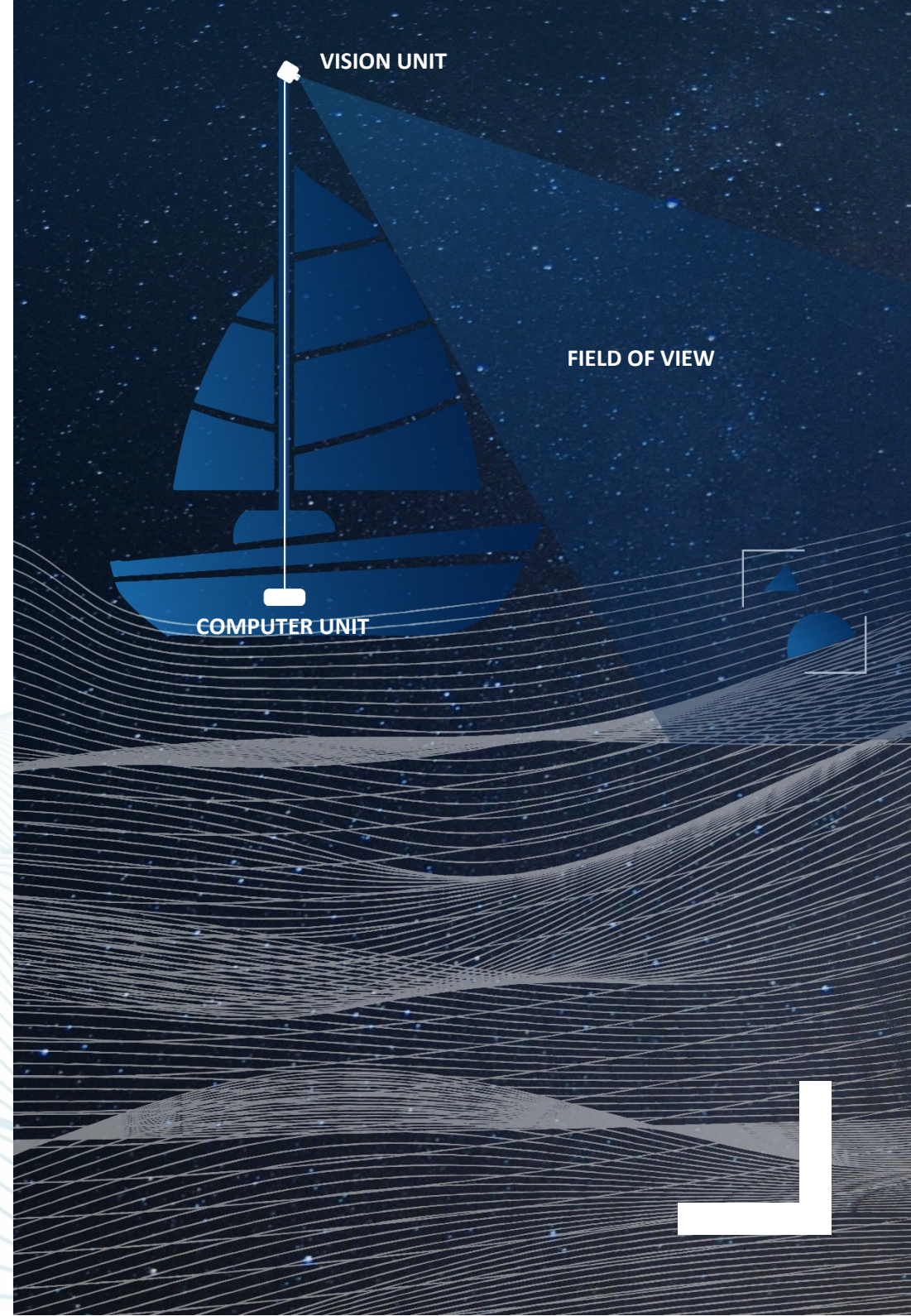
Since the beginning of the exploration of the oceans, man has tried to control all the factors that may hinder navigation, especially undesirable objects in the navigation route.

OSCAR was developed considering that most accidents occur due to human failure, mainly lack of attention and inexperience. It is a vigilant always active that allows safe navigation, especially at night when visibility is very reduced.

In addition to thermal and optical video, and other sensors, our OSCAR technology also synchronizes with the boat bus data network, to better estimate trajectories and display most relevant information in the user interface.

Unlike conventional equipment such as radar or AIS, OSCAR can detect objects up to 1000 meters away and area starting at 1m<sup>2</sup>, increasing the detection capacity to an unprecedented level in the field and without depending on third parties.

**OSCAR is the result of a complex engineering project that uses our technology to make maritime navigation easier and safer**







## **OSCAR: FROM PROFESSIONAL TEAMS TO THE PRIVATE MARKET**

OSCAR has come a long way to the present day, starting with the first tests on small boats until finally convincing the world's most demanding sailing teams of its value.

OSCAR established itself in the private market with OSCAR ONE SERIES and CUSTOM SERIES, as an essential assistant to navigation, both for professionals and enthusiasts.

The product's versatility and unique specifications made it easy to be adapted and integrated into private sailing boats, super yachts, ferries and other vessels.

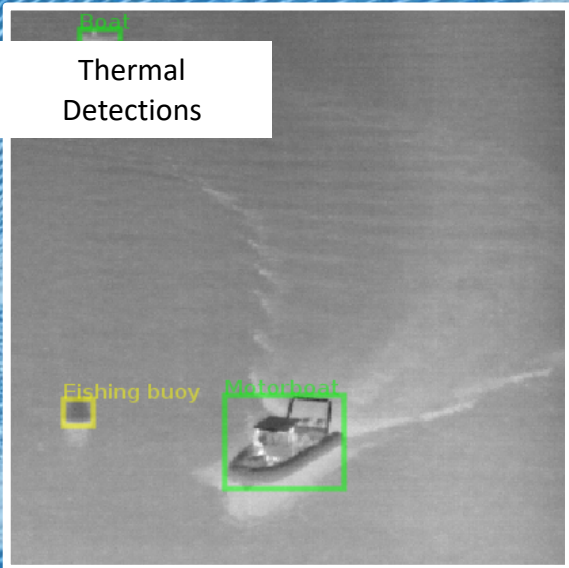
**In addition to private clients, today two thirds of IMOCA 60 class racing boats use OSCAR in their races and seven of the teams participating in the VOLVO OCEAN RACE 2021 are equipped with OSCAR**



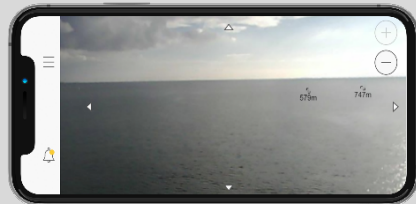
Vision Unit



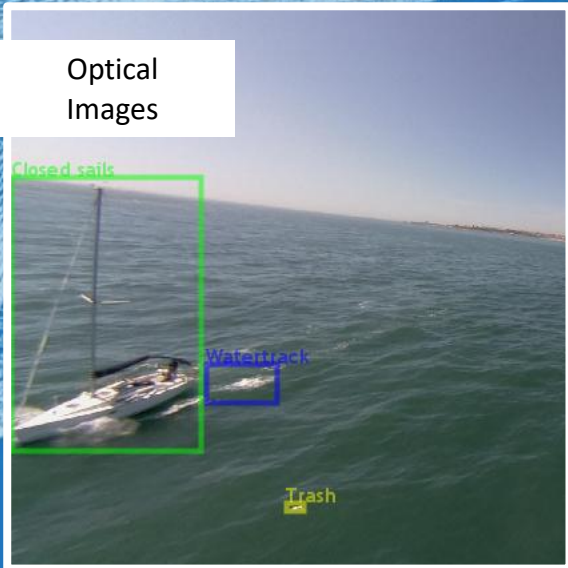
Thermal  
Detections



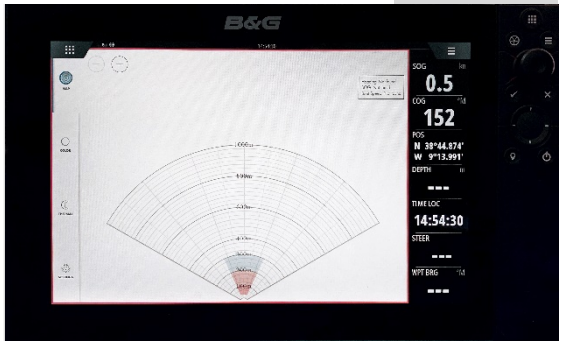
iOS Application



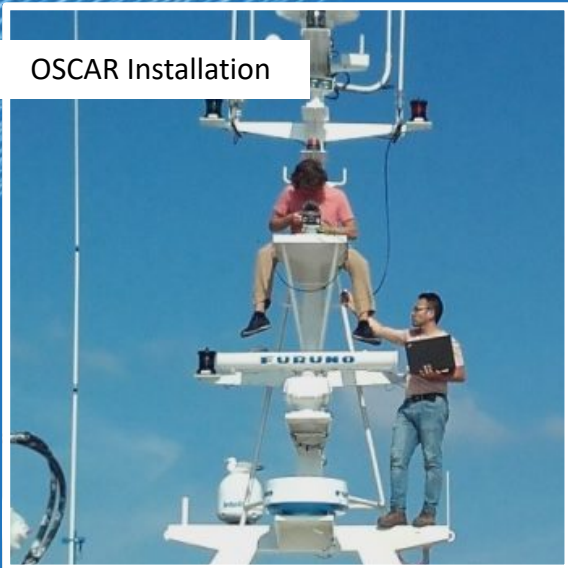
Optical  
Images



Application on a  
Multifunction Display (B&G)



OSCAR Installation





## CASE STUDY: EYSEEA AMP

### INNOVATE, MANAGE AND PROTECT

Like many other marine protected areas, the Port-Cros National Park (France) faces crucial and complex issues of biodiversity preservation. In collaboration with the BSB group (BSB Marine, BSB AI and Digitiz-it) an artificial intelligence network has been developed to improve the management and preservation of marine protected areas. This technology not only allows solving the needs of this park but also of any other marine area with similar requirements.

Using the technology already developed by the BSB group, EYSEEA AMP is an automated surveillance device for natural areas that consists of a set of cameras (optical and thermal) connected to a network of artificial intelligence previously trained to identify and track floating objects. All information in video format is analyzed and forwarded to an application in real time, alerting in case of detection of suspicious behavior, alerts that can also be sent via SMS.

**EYSEEA AMP is a robust, reliable, resistant, discreet product, easy to use and to install even in remote locations, with difficult access and without access to the electrical grid. Making it a powerful support for control and surveillance of maritime areas**







## EYSEEA AMP: FROM PORT-CROS TO THE FINAL PRODUCT

The first prototypes of the EYSEEA AMP were tested in the Port-Cros National Park until the final concept was validated.

EYSEEA AMP meets many requirements to fulfil the needs of marine protected area managers, from energy autonomy, zero environmental impact, ability to withstand extreme conditions (wind, sun, heat, salt, ...), a user interface to allow video inspection, system management from a remote location, and fully configurable warning systems.

Several marine protected areas have also shown their interest in this intelligent system. Each of these areas will require continuous learning and improvement of the artificial intelligence network, which will open new perspectives for the system, to the benefit of all users.

**The technological innovation of  
EYSEEA AMP can now be replicated in  
any marine protected area in order to  
meet different needs and  
requirements concerning that region**



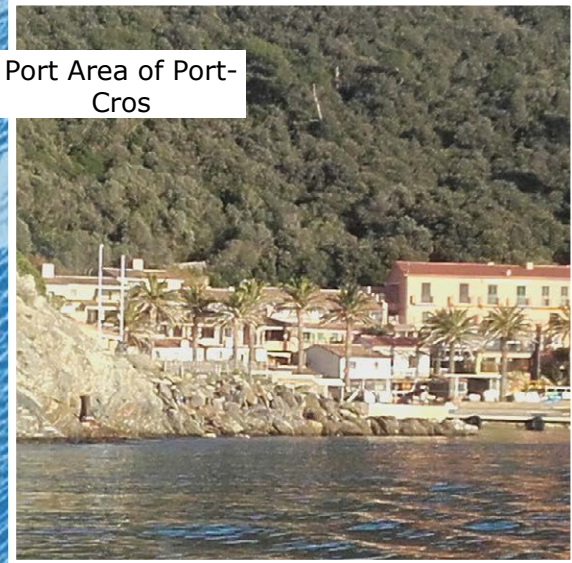
Vision Unit in a pole



Computer Unit and Solar Panels installation



Port Area of Port-Cros



Vision unit in a ravine



Tests during installation



Real-time images in the application





# WORKING WITH DIGITIZ-IT

**INNOVATION, DEDICATION,  
COMMITMENT**

## **COMPUTER VISION - SPECIALISTS IN IA-BASED IMAGE PROCESSING**

- Detection, identification and tracking of objects using multiple sensors (thermal and optical cameras, LIDAR, ToF) in complex, noisy and constantly changing environments.
- Development and training of dedicated convolutional neural networks (CNN) - deep-learning.

## **BIG DATA SET HANDLING/ PROCESS CHAIN FOR ARTIFICIAL INTELLIGENCE PROJECTS**

- Automated data acquisition, selection, annotation and exportation of sequences for distributed treatment and quality control and privacy.
- Optimized and secure database with over 50 million synchronized thermal and optical images, including meta-data (IMU, Speed, GPS, among others) to create balanced sets of training, testing and validation data that are representative of the real world.



## **SOFTWARE DEVELOPMENT**

- Group with more than 10 years of experience in custom software development.
- Test automation and QA to minimize risks and maximize development resources.

## **HARDWARE DEVELOPMENT**

- Prototyping and small series production.

## **COMPETENT AND ORGANIZED TEAM**

- Over twenty engineers with different backgrounds, located in Austria and Portugal working with an integrated process to constantly assure quality and maximize efficiency.





## OUTLINE

**OSCAR** is a commercially available maritime collision prevention system based on optical and thermal vision, detection and identification of objects by means of artificial intelligence.

**EYEMSEA AMP** is a validated and energy self-sufficient system for marine reserves that detects, tracks and alerts suspicious or unlawful behaviour.

We are available for the development of new solutions or adapt our technology to custom projects.

Development projects can be supported with existing hardware and/or rapid prototyping, adaptation and training of the artificial intelligence network, or other requirements.

**We are a highly qualified team with more than twenty engineers, dedicated to the development of new technologies, focusing on product innovation.**





PRESENTATION

**IT** Digitiz-it

**ARTIFICIAL INTELLIGENCE AT THE  
SERVICE OF MARITIME AREAS**

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