

A dark blue rectangular overlay with rounded corners. On the left is a white sailboat icon. To its right, the text "SAILING BOAT" is displayed. Below the icon and text, the distance "1300m" and speed "3.8kn" are shown. A red dashed bounding box is visible on the sea surface below the overlay.

SAILING BOAT  
1300m 3.8kn

A rectangular overlay with a red top half and a dark blue bottom half. The top half contains a white triangle warning icon and the text "DANGER ALERT". The bottom half contains another white triangle warning icon and the text "HAZARD". Below "HAZARD", the distance "140m" and speed "0kn" are shown. A red dashed bounding box is visible on the sea surface below the overlay.

DANGER ALERT  
HAZARD  
140m 0kn

# NOW YOU SEE

Presentation SEA.AI @SMM 2024 Mackay  
Hamburg, September 2024

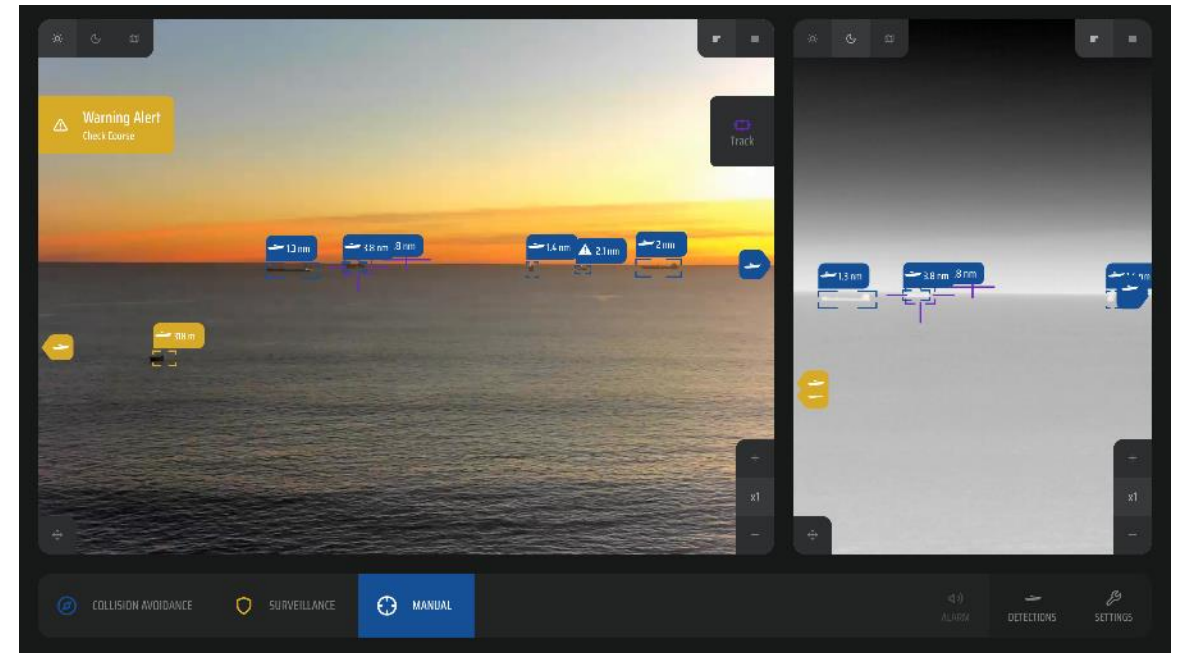
## SEA.AI in a nutshell

We improve safety and situational awareness at sea with cutting-edge machine vision technology. Our software can **detect, classify and estimate distance** to objects.

SEA.AI products warn users in **real-time** about floating objects on the water – providing an unprecedented level of situational awareness at sea.

Our **systems are independent** and **do not require input from other sensors** and **no internet connectivity** to operate.

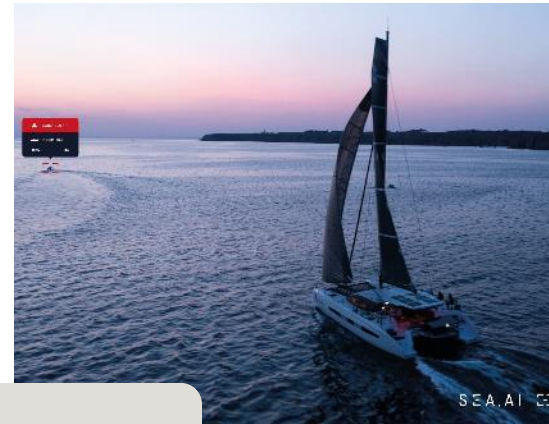
We are the **industry leader in AI-based object detection** and see ourselves as a software company working closely with industry leaders to provide the best solutions to their challenges at sea.



Camera  
sensors + Artificial  
intelligence = Full object  
detection

### Object Detection

Automatic object detection based on machine vision closes the gap of conventional technologies in situational awareness.

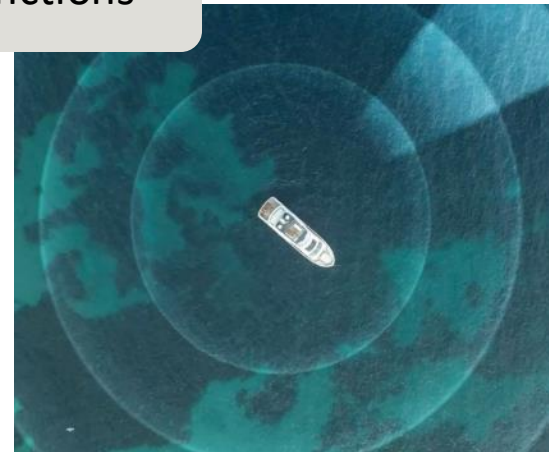


### Collision Avoidance

Panning towards the front during travel. Intelligent alarming in case of collision risk with anything in the vessel's path.

### Target Tracking

Keeping selected object in center of screen (person-overboard situations, tender tracking, government operations)



Key functions

Perimeter Surveillance  
Offers 360° scanning of vessel's surrounding.

# Our Offices

A fast-growing multinational team of 65+ professionals based in Austria, France, Portugal, and the USA.



MIAMI  
SEA.AI Inc.



LISBON  
SEA.AI Lda



PORT LA FORÊT  
SEA.AI SAS



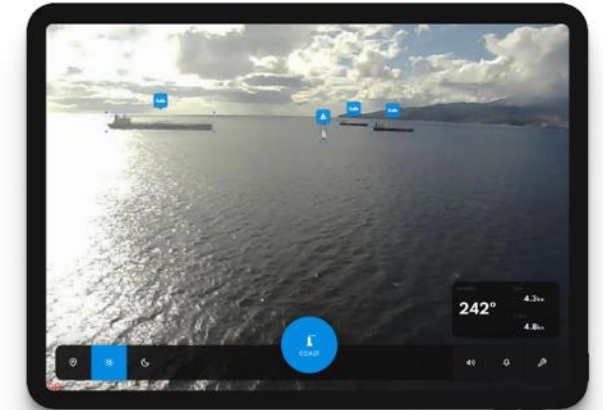
LINZ  
SEA.AI GmbH



VIENNA  
SEA.AI GmbH

# SEA.AI fills gap in situational awareness at sea

SEA.AI vs. conventional systems	AIS	RADAR	SEA.AI
Detecting land structures		●	
Detecting squalls / weather fronts		●	
Detecting ships / large boats	●	●	●
Recognizing ships / large boats	●	●	●
Detecting small boats		○	●
Recognizing small boats			●
Detecting persons in water			●
Recognizing persons in water			●
Detecting other floating obstacles			●



## How it works

SEA.AI combines high tech optical sensors with latest technologies in the field of computer vision and artificial intelligence into easy to install products with intuitive user interfaces.

## DATABASE FACTS

Our proprietary database is the core of the system software and its integrated AI-powered object detection and recognition:

- >10 million annotated marine objects (thermal images and RGB images)
- 500+ installed systems over the last 6 years
- AI characterization of all objects along 100,000s of filters
- >400,000 nautical miles on-water experience around the world
- Continuously growing and improving (new object classes, e.g. icebergs, new geographic regions, e.g. Red Sea), target segments,..

SEA.AI

## 2 OPTIONS



### Cameras and processors with machine vision processor

- Systems with high-resolution lowlight and thermal cameras. Detection of temperature differences up to 0.05°C
- Compatibility with third party cameras (Brain – launch in fall 2024)
- Comparing anomalies with neural network
- Regular over-the-air updates of newest AI, trained with new data for improved overall performance.
- No connection to other systems like AIS & Radar, nor internet connection necessary

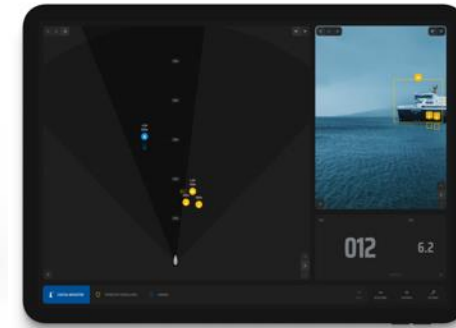


### Intuitive UI / UX

- Augmented reality video stream combined with map view
- Intelligent acoustic and visual alarms
- Joystick control available
- Detection, classification and distance estimation
- Multi-device capability: Available on on-board computers, MFDs, smartphones & tablets as well as interface.

Works on all devices

SEA.AI 



PC, Windows, MacOS, Portable devices  iOS  android

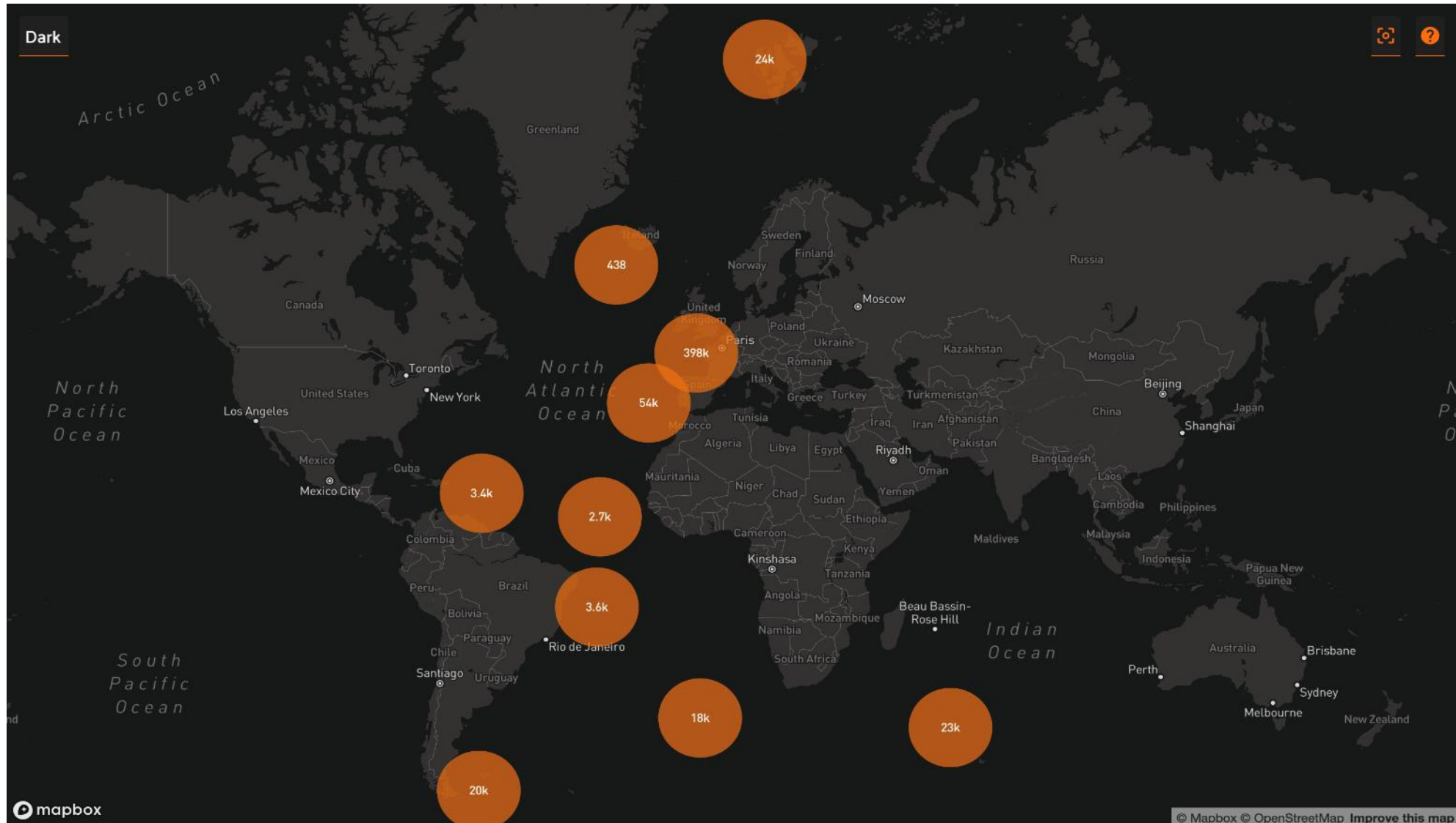
Further integration possibilities into ECDIS via standard protocols. (ONVIF-S, NMEA, TTM/TLL messages, HTML 5)

Compatible with MFDs of largest manufacturers:





# Proprietary, worldwide database gathered over years





## Raw Data

For effective automatic whale detection, it's crucial to have a varied dataset. Upon receiving recordings, we prioritize diversity in:

- Angles of observation for each "target"
- Weather conditions under which the targets are captured
- Visual data encompassing a wide range of species



## Process and Label

Data is processed, selected and labeled internally with our tools and quality standards aiming for:

- Efficient division between training and testing data
- Full annotation and classification of every target in each image and horizon
- Behavior analysis (recognizing water jets, improves detection accuracy)



## Whale Detection

Output of the Neural Networks (NN) and machine vision is passed through our tracker for full reliable awareness we assess:

- Complete detection capabilities
- Classification of objects when feasible
- Proximity alerts to ensure collision avoidance

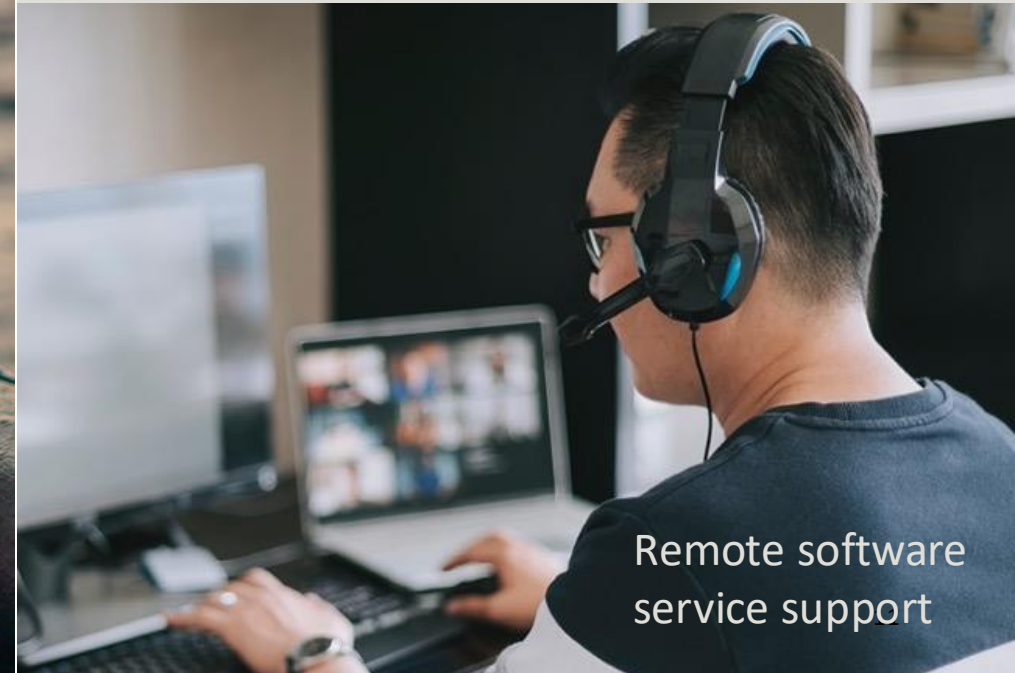
Worldwide support

Installation support

SEA.AI 



Global distribution network



Remote software  
service support

# Target Segments

and usecases

# SEA.AI as leader in AI based object detection serving full market spectrum

## Sailing



- Racing Sailing
- Cruising Sailing

## Motor Yachting



- Motor yachts
- Superyachts

## Commercial boating



- Fishing boats
- Ferry boats
- USVs
- CTVs
- Other workboats

## Shipping



- Ferries
- Cruise ships
- Container ships
- Other ships

## Government & First Responders



- Search and Rescue
- Coast Guard / Border Patrol
- Infrastructure protection
- Navy
- Police

## Observation & Surveillance



- Offshore Platforms
- Marine Protected Areas
- Fish Farms
- Waterside Facilities
- Ports and Harbours

## Customer Testimonial Fred Olsen

Fred Olsen operates high speed ferries in the Canary islands. Through HSC (high speed certification) they are required to carry a night vision system.

- Existing system required and actively watching operator
- Whale detection is a primary usecase
- Have started with a trial and now rolled out to entire fleet
- Ongoing development project



Source: <https://youtu.be/F8XTt4cdlss?si=UKlOQgd2P9N6rnN6>

# Product Details

SENTRY

# SEA.AI Sentry

Product details



SEA.AI 

Superior 360° situational awareness and surveillance for commercial vessels, government craft, first responders. And now you?

#### FEATURES:

- MOB detection and classification
- Collision avoidance
- Situational awareness
- Perimeter Surveillance
- Target Tracking
- SEA.AI Joystick available
- ONVIF-S compatible





# SEA.AI Sentry

Easy to use application



\* Optional software interface API available for integration into navigation systems following ONVIF-S standards

# SEA.AI Sentry

## Detection ranges and technical specifications

### Detection Ranges\*

Buoy, person  
in water, etc.

up to 700 m

Dinghy, RIB,  
inflatable

up to 3,000 m

Motorboat,  
sailboat

up to 7,500 m

Large  
vessel

horizon



Technical specifications	Detection Angle		Detection Frequency	Resolution	Pan	Tilt	Weight
	Daylight & Twilight	Night					
SEA.AI Sentry	360°	360°	10/sec	2x thermal: 640 x 512 px 2x lowlight: 2592 x 1944 px	360°	+/- 20°	5.4 kg

\* Detection range varies depending on weather conditions e.g. sea state, rain, fog. \*\* Software subscription included for the first year.

SEA.AI covers multiple use cases and solutions to operators

- Automatic object detection and classification of any floating objects
- Works day and night
- Intelligent alarms that can be set to your needs
- Passive system that do not require any other sensors
- Easy installation
- Intuitive application for easy usability
- Acoustic alarms
- Integration capabilities via third parties

