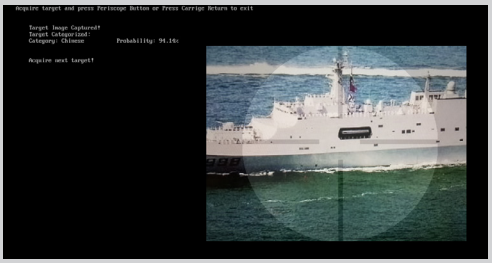
Machine Learning Ship-Recognition System

Identify and respond to threats more effectively.

Identifying whether or not a vessel is a threat is a blend of art and science. Extensive training and practice are required for maximum proficiency. Rite-Solutions' machine learning (ML) ship-recognition system increases the application of science using leading-edge technology to assist ship personnel with this age-old challenge.

By using existing training images and building artificial intelligence (AI) inference models using machine learning, Rite-Solutions Machine Learning Ship-Recognition System can help watch-standers do their jobs more quickly and with greater accuracy. Additionally, with the ability to enhance the inference capabilities in the field in real-time, this machine learning approach to ship recognition improves the Navy's ability to identify ships and determine the best course of action.

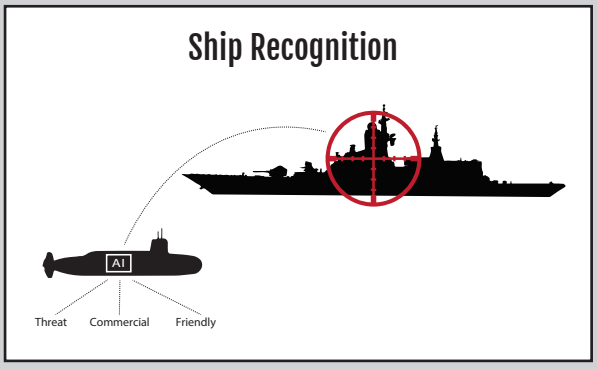
- Help sailors to identify vessels more quickly and accurately
- Complement decision support tools, improve CO's decision–making ability and confidence
- Scale and update ship-recognition capabilities across an entire fleet, in near-real time
- Leverage on-shore expertise
- Expand the number of viewpoints, using unmanned vehicles and other devices, to enhance visual recognition capabilities



An expert resident in a small form factor.

Historically, the processing power required for artificial intelligence and machine learning was too great to have on-board, or object inference latency was too slow to be effective. Instead, imagine using decision support aids like Alexa and Siri on a submarine. Today, ultra-compact, low-power, edge-computing devices are specialized, small, and powerful enough to handle a trained neural network model while fitting in the palm of a hand and running off batteries. So AI capabilities can be integrated into command systems on a submarine, surface ship, unmanned underwater vehicle (UUV), drones, mines, and even handheld devices like binoculars.

- Edge computing allows the Navy to keep data on-board, safe and secure. The system can recognize ships independently and does not need network connectivity to perform.
- Images used to train sailors are also used to train the system's machine learning model to recognize different vessels.
- While using the system, sailors can "flag" unknown vessels/ Small-sized models (instead of images) can be shared throughout the fleet, while not interfering with real-time missions.
- When subs return to port, "flagged" objects and images are securely transferred to on-shore personnel for further analysis and added to the model to further enhance recognition capabilities.



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