

16. Automatic risk assessment of vessels in maritime areas

In the last decade marine traffic has grown greatly. At the same time terrorist and criminal activities have moved to the sea as well. The nations responsible for managing maritime areas therefore more and more face the problem of detecting suspicious vessels. Our demo shows how a human operator responsible for managing large complex maritime areas can be assisted by automatic risk assessment.



Our system takes inputs from reliable monitoring systems and combines this with information sources of unknown trustability (such as open source intelligence, public databases, websites and social media feeds). The system automatically presents suspicious vessels to the human operator. This automatic risk assessment can give a productivity boost to the coast guard, the police, the navy, the customs and to environmental protection agencies.

ICT science question

How can systems collect and use information to develop a human-like understanding of complex dynamic situations? More specifically: How can systems automatically determine the intent of an action?

Current so-called 'situational awareness systems' are characterized by cleverly visualized and configurable operational pictures supporting the decisions of the human operator. If the human is taken out of the loop, the system becomes entirely ineffective. The unique approach of our demo is the integration of multiple artificial intelligence technologies into a seamlessly automatic operating solution providing the highest end-user value.



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COMMIT/ project
METIS Dependable Cooperative Systems for Public Safety

Application

The main application is the monitoring of shipping activity and the prediction of the intent of shipping activities. How can we understand the intent of a vessel in a maritime area? The results can be used by the Thales company in decision support systems for the management of large maritime areas.

Current systems are fragmented, rely on experience of operators and do not scale well. Continuing cost pressures are driving the need for intelligent information and reasoning technology. Typical users can be the coast guard, the navy, the police, customs and environmental protection agencies. Competitors include for example: 3i:Mind, Greenline Systems and Saab Raytheon.

Alternative Application

In addition to safety and security applications our technology is equally suited to providing the infrastructure needed for Condition Based Maintenance (CBM) systems. Such systems have many sensors or sources of information which can be used in combination with probabilistic reasoning models to predict the likelihood of essential maintenance being required in the future. Potential users are companies designing complex systems, for example ASML, Océ and Rijkswaterstaat. The hardest challenge is capturing the required domain knowledge.



Safety & security operators will be able to cope efficient with an overload of mission critical disparate data .. do more, effective, for less.



How to integrate various novel AI technologies into an effective innovative decision support system.



Innovative technologies for context-aware system architectures dealing with domains characterized by a certain level of uncertainty.



Using integrated high TRL level demonstrators as means to convince industry of the value and opportunities of my scientific innovation.

