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Headline: SMU, A*STAR, Fujitsu developing predictive tech to prevent ship collisions

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One of the technologies they are working on include the ability to detect and recognise a near-miss risk 10 minutes before the incident happens.

The guided-missile destroyer USS John S McCain is guided by a tugboat (L) after a collision with an oil tanker, outside Changi naval base in Singapore on August 21, 2017. (Photo: AFP/Roslan Rahman)

SINGAPORE: The Straits of Singapore and Malacca is one of the world's busiest sea lanes, and has seen some high-profile incidents recently such as US Navy ship John S McCain colliding with an oil tanker resulting in the deaths of 10 US sailors last August.

This backdrop makes the work of the Agency for Science, Technology and Research's (A*STAR) Institute of High Performance Computing, Singapore Management University (SMU) and Fujitsu all the more relevant, as they look to develop new predictive technologies for maritime vessel traffic management - with the support of the Maritime and Port Authority of Singapore (MPA).

In a joint press release on Monday (Apr 16), they said these predictive technologies will tap the power of artificial intelligence and big data analytics.

One of the technologies being developed is a short-term trajectory prediction model to accurately predict the trajectory of a vessel using machine learning and motion physics. Similarly, a long-term traffic model is also being developed to forecast the traffic situation based on the patterns of a large number of vessel types derived from historical data, they added.

Another technology being developed is risk calculation model that can reliably quantify the near-miss risk of a pair of vessels by integrating various risk models, among other works.

These will then be integrated and tested for their potential to enhance navigational safety, such as the ability to detect and recognise a near-miss risk 10 minutes before the incident even happens, the press release noted.

"As a globally critical point of passage for seaborne commercial shipping traffic, the continuous enhancement of navigational safety in these crowded waters is a crucial goal," according to the press release.

The research and development (R&D) was initiated by the Urban Computing and Engineering Centre of Excellence, a public-private partnership between A*STAR, SMU and Fujitsu, which was set up in 2014.

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Additionally, the MPA said in the release it supports the development of technologies that harness AI to enhance navigational safety within the Port of Singapore, and will provide data and information for further R&D and testing of these technologies.

This is in line with the Maritime Transformation Programme unveiled during this year's Budget debates, with strategic sea space and maritime traffic management as one of the stated focus areas.
Source: CNA/kk(aj)