

Identification of Vessel Class with Long Short-Term Memory Using Kinematic Features in Maritime Traffic Control

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Abstract : Preventing abuse and illegal activities in a given area of the sea is a very difficult and expensive task. Artificial intelligence offers the possibility to implement new methods to identify the vessel class type from the kinematic features of the vessel itself. The task strictly depends on the quality of the data. This paper explores the application of a deep, long short-term memory model by using AIS flow only with a relatively low quality. The proposed model reaches high accuracy on detecting nine vessel classes representing the most common vessel types in the Ionian-Adriatic Sea. The model has been applied during the Adriatic-Ionian trial period of the international EU ANDROMEDA H2020 project to identify vessels performing behaviors far from the expected one depending on the declared type.

Keywords : maritime surveillance, artificial intelligence, behavior analysis, LSTM

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