An Active Machine Learning Strategy for Dark Vessel Detection

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Résumé ou extrait : The Automatic Identification System (AIS) is a tracking system mandatory onboard most ships today. However, vessels engaging in suspicious activities can easily turn off their transceivers and go dark instantaneously, wich is referred to as intentional On-Off Switch (OOS). This report proposes an Active Machine Leraning (AML) strategy for the detection of OOS among fishing vessels, on the basis of a public dataset published by Ray et al. (2019) recording six months of AIS messages between October, 2015 and March, 2016 in the vicinity of Brest, France. The proposed AML framework relies on a Gradient Boosting Classifier algorithm, the Diverse mini-batch Active Learning query strategy introduced by Zhdanow (2019), and a custom-built Graphical User Interface.