

Recognition of Objects in a Maritime Environment Using a Combination of Pre- and Post-Processing of the Polynomial Fit Method

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Abstract : Traditionally, radar systems are the eyes and ears of a ship. However, these systems have their drawbacks and nowadays they are extended with systems that work with video and photos. Processing of data from these videos and photos is however very labour-intensive and efforts are being made to automate this process. A major problem when trying to recognize objects in water is that the 'background' is not homogeneous so that traditional image recognition technics do not work well. Main question is, can a method be developed which automate this recognition process. There are a large number of parameters involved to facilitate the identification of objects on such images. One is varying the resolution. In this research, the resolution of some images has been reduced to the extreme value of 1% of the original to reduce clutter before the polynomial fit (pre-processing). It turned out that the searched object was clearly recognizable as its grey value was well above the average. Another approach is to take two images of the same scene shortly after each other and compare the result. Because the water (waves) fluctuates much faster than an object floating in the water one can expect that the object is the only stable item in the two images. Both these methods (pre-processing and comparing two images of the same scene) delivered useful results. Though it is too early to conclude that with these methods all image problems can be solved they are certainly worthwhile for further research.

Keywords : image processing, image recognition, polynomial fit, water

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