Detecting windmill parks in the ocean based on Sentinel satellite imagery

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In this paper we try to identify windmill parks in the ocean based on satellite imagery. A convolutional neural network (CNN) was trained to detect individual windmills and boats. Land coverage maps and noise reduction techniques were applied in the preprocessing phase to improve training. Density-based clustering algorithms (DBSCAN and OPTICS) were compared in order to optimize the intermediate results. The final result is a generated ESRI shapefile that encircles all identified parks with a polygon.

Keywords: Windmill park; Satellite imagery; Convolutional neural network; Clustering algorithm; Sentinel