

2D Point Clouds Features from Radar for Helicopter Classification

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Abstract : This paper aims to analyze the ability of 2d point clouds features to classify different models of helicopters using radars. This method does not need to estimate the blade length, the number of blades of helicopters, and the period of their micro-Doppler signatures. It is also not necessary to generate spectrograms (or any other image based on time and frequency domain). This work transforms a radar return signal into a 2D point cloud and extracts features of it. Three classifiers are used to distinguish 9 different helicopter models in order to analyze the performance of the features used in this work. The high accuracy obtained with each of the classifiers demonstrates that the 2D point clouds features are very useful for classifying helicopters from radar signal.

Keywords : helicopter classification, point clouds features, radar, supervised classifiers

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