

### عنوان مقاله:

Classification of Sonar Targets Using OMKC, Genetic Algorithms and Statistical Moments

#### محل انتشار:

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#### خلاصه مقاله:

Due to the complex physical properties of the detected targets using sonarsystems, identification and classification of the actual targets is among the mostdifficult and complex issues of this field. Considering the characteristics of thedetected targets and unique capabilities of the intelligent methods in classification of their dataset, these methods seem to be the proper choice for the task. In recentyears, neural networks and support vector machines are widely used in this field.Linear methods cannot be applied on sonar datasets because of the existence of higher dimensions in input area, therefore, this paper aims to classify such datasets by a method called Online Multi Kernel Classification (OMKC). This method uses apool of predetermined kernels in which the selected kernels through a defined algorithm are combined with predetermined weights which are also updated simultaneously using another algorithm. Since the sonar data is associated withhigher dimensions and network complexity, this method has presented maximum classification accuracy of 97.05 percent. By reducing the size of input data usinggenetic algorithm (feature selection) and statistical moments (feature extraction), eliminating the existing redundancy is crucial; so that the classification accuracy of the algorithm is increased on average by 2% and execution time of the algorithm isdeclined .by 0.1014 second at best

### کلمات کلیدی:

Sonar, Classification, OMKC, Genetic Algorithm, Statistical Moments, Clutter

## لینک ثابت مقاله در پایگاه سیویلیکا:

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