

## **Advanced Digital Signal Processing**

### **Novel Algorithm Image Thresholding using Non-Parametric Fisher Information**

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#### **DESCRIPTION OF THE PAPER**

This paper is all about image thresholding, which means separation of sample image which contains the actual object or the content and the background. And the thresholding is separation of the content from the background which usually has more application in image processing. Usually for the separation of the image there are so many algorithms available already which is used based on the application and the accuracy of the result. But in this paper, we will be discussing a new algorithm called Fisher Information.

#### **FISHER INFORMATION**

Fisher Information (FI) is an important concept in statistical estimation theory and information theory. Novel algorithm is developed based on non parametric FI measure.

#### **OBJECTIVE**

The aim is to make a binary image (object and background) by which all the pixels with grey level higher than the determined threshold are classified as object and rest pixels are assigned to background or vice versa.

#### **DESCRIPTION OF FI**

This FI based thresholding considers an image histogram to be a probability distribution and then selects an optimal thresholding value that yields maximum fisher information (FI).

#### **TESTS OF FI**

Variety of images including non-destructive testing and text documentation images shown and the result shows that the algorithm contained this technique was successfully separated.

#### **RESULT**

This algorithm determines optimal threshold based on the FI measure by maximizing the measure of the separability of the resultant classes over all of the grey levels. Thus found effective over several classic methods like Otsu's method, the min error method, entropy based threshold method.