Image Thresholding using Histogram Fuzzy Approximation

Abstract

Image segmentation is one of the most important techniques in image processing. It is widely used in different applications such as computer vision, digital pattern recognition, robot vision, etc. Histogram was the earliest feature that has been used for isolating objects from their background, it is widely applicable in different application in which one needs to divide the image into distinct regions like background and object. The thresholding technique is the most popular solution in which a value on the histogram is selected to separate the regions. This value, which is known as the threshold, should be specified in an appropriate way. One of the methods is by using the global minimum value of the histogram and divides the histogram into white and black (binary image). Due to the spatial and grey uncertainty and ambiguity, the extraction of the threshold value in a crispy way is not suitable always. To overcome such problems, the proposed method uses two membership functions to measure the whiteness and blackness of a member element. The pixel belonging to one of the region is dependent on the membership value it has according to the membership functions.

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Index Terms

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Keywords

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