Thresholding

= the operation that transforms an input image, be it a monochrome or colour one, into a binary image, that is an image whose pixels can take one of two values only (e.g. black(0) and white(255))

– aim to reduce misclassification error
– maximises the contrast between the values
– in the ideal case, the threshold value would clearly distinguish between contrasting object (foreground) and background

How to find a threshold value?

1. Incremental (initialize suggested threshold with the lowest value in the image)
   a. Search incrementally through the histogram for a threshold
   b. Starting at the lower end of the histogram, compute the average of the pixels less than the suggested threshold L, and the average of the pixels with grey values greater than the suggested threshold G.
   c. Compute the average of L and G. This value will be the threshold if it is equal to the suggested threshold.
   d. Otherwise increment the suggested threshold and repeat the process.

2. Automated
   a. An initial threshold is suggested (the average of the image's four corner pixels is a suitable choice)
   b. The average values of the pixels whose values are less and greater than the initial threshold are computed – L and G
   c. If the average of L and G equals the suggested threshold, we have found the threshold value!
   d. Else, search continues where the new suggested threshold value would be the average of L and G computed above

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