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## A novel set of image morphological operators using a modified vector distance measure with color pixel classification

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**Abstract:** A novel set of color image morphological operators is proposed and is based on using a modified vector distance measure with an efficient preprocessing color pixel classification procedure. The input color pixels are classified into different categories based on the characteristics of the human color perception properties. Next, the color distance is calculated for each input color pixel based on its category, and, a combined technique is used to obtain color morphological operators. The main contributions of this work can be summarized in the following: (a) designing of novel vector-based morphological operators that can be used with color images and (b) the designed operators were extended to be implemented for developing vector-based tools for noise suppression, texture analysis, shape analysis, edge detection and skeletonization.