

Jordan University of Science and Technology

Morphological Operators For Color Image Processing Based on Mahalanobis Distance Measure

Authors: Hazem Al-Otum

Abstract: Morphological image processing has been widely used to process binary and grayscale images. To extend the concept to color images, an ordering of the data is required. The solution is not unique, because color spaces are not totally ordered and the ordering process is not straightforward. In this work, two algorithms for color morphology are proposed: A Mahalanobis-color-distance-based morphological ordering algorithm, and a corrected componentwise morphological ordering algorithm. Both algorithms implement the Mahalanobis color measure to replace the angle-valued pixels by a scalar, and are based on a combination of reduced and conditional ordering of the underlying data.