



Analysis of the Relevance of Evaluation Criteria for Multicomponent Image Segmentation

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Mots-clés	metric [5], Multicomponent [6], Quality [7], supervised [8], synthetic [9]
Résumé en anglais	<p>Image segmentation is an important stage in many applications such as image, video and computer processing. Generally image interpretation depends on it. The materials and methods used to demonstrate are described. The results are presented and analyzed. Several approaches and algorithms for image segmentation have been developed, but it is difficult to evaluate the efficiency and to make an objective comparison of different segmentation methods. This general problem has been addressed for the evaluation of a segmentation result and the results are available in the literature. In this work, we first presented some criteria of evaluation of segmentation commonly used in image processing with reviews of their models. Then multicomponent synthetic images of known composition are applied to these criteria to explore the operation and evaluate its relevance. The results show that choosing an assessment method depends on the purpose, however the criterion of Zeboudj appears powerful for the evaluation of region segmentations for properly separated classes, on the contrary the criteria of Levine-Nazif and Borsotti are adapted to the methods of classification and permit to build homogeneous regions or classes. The values of the Rosenbeger criterion are generally low and similar, so hard to make a comparison of segmentations with this criterion.</p>
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