Image segmentation

General purpose image segmentation separates an image into homogeneous groups of connected pixels. One of the ultimate goals of image segmentation is the delineation of shapes of objects in images for purposes of object recognition and, eventually, image understanding. In generally, image segmentation algorithms are based on one of two basic properties of intensity values: discontinuity and similarity. In the discontinuity (edge-based segmentation), the approach is to partition an image based on abrupt hang in intensity.

It uses edge-detection for segments' extraction in the image. And in the similarity (region-based segmentation), the approach is based on partitioning an Image Into regions Tanat are salary according to a set AT prevalent criteria. We use threshold, region growing, and region splitting and merging with a uniformity or texture based similarity criterion. With our study on image segmentation, we use region-based method for performance because it is used to separate semantic sets, and is an important step for image understanding.

The region-based segmentation consists in estimating which class each pixel of the image belongs to. When the fact that none of the segmentation approaches are applicable to all images, several region-based segmentation approaches have been proposed. None of the algorithms are equally suitable for a particular application. It is the reason why establish certain criteria, other than human subjective ones, to evaluate the performance evaluation of segmentation algorithms is needed. Performance evaluation is a critical step for increasing the understanding rates in image processing.

This work will focus on discrepancy evaluation methods of region-based segmentation, that consist in comparing the results obtained by applying a segmentation algorithm with a reference (ground-truth) and measuring the differences (or discrepancy). This approach decides on the input image's type: textured or undeterred. This can be done interactively, the user deciding the type of the image displayed on computer screen. Depending on the image's character and state several enhancement filtering actions are applied in the preprocessing state: image smoothing, edge enhancement r contrast adjustment.

For the resulted enhanced image, as the one in Figure 1 (b), we have to solve a texture (or uniformity) recognition problem: for each texture or uniform pattern of the image to find all its occurrences, which meaner the clustering of all image regions in a proper number of categories, depending on their uniformity or texture. In the filtered image we can distinguish two textured regions and nine uniform regions which should be grouped in a number of classes. A. Noised image b. Filter image Figure 1 II.

Relative work to region-based approach on image segmentation Our work has contributions both in the feature extraction stage and also in the classification stage. 1 . Feature extraction approach Feature extraction involves simplifying the amount of resources required to describe a large set of data accurately, and is also a general term for methods of constructing combinations of the variables to get around these problems while still describing the data with sufficient accuracy.