



Questioned Documents Section – 2007

J17 Color Region Segmentation Based on RGB Vector Space

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The goals of this presentation are to improve the credibility of forensic image processing, and to facilitate questioned documents examination.

This presentation will impact the forensic community and/or humanity by greatly improving the credibility of image processing on evidence of questioned documents.

By the digital technology progressing, using digital image processing technology on questioned documents is more frequent and important for the document examiners. Specially, in forensic image processing, it is often important to be able to separate a feature from an interfering background or foreground.

This study proposed a method of color region segmentation based on RGB vector space for applying forensic documents. Segmentation is a process that partitions an image into regions. Color region segmentation using RGB color vectors is straightforward. Suppose that the objective is to segment objects of a specified color range in an RGB image. An estimate must be obtained of the "average" or "mean" color that is to be segmented. The objective of segmentation is to classify each RGB pixel in an image as having a color in the specified range or not. So, need a measure of similarity such as the Euclidean distance is needed. Consequently, the key issue in this approach is how to estimate a specified threshold that can separate effectively different objects on questioned documents, and then it makes the examiners to inspect clearly objects including handwriting, stamp inks etc.

In conclusion, the researcher's experimental results demonstrate that the above new method can be used successfully to segment several objects of forensic images, and it greatly improves the credibility of image processing on evidence of questioned documents.

Color Region Segmentation, RGB Vector Space, Questioned Documents