

IMPROVING DEGRADED DOCUMENT IMAGES USING BINARIZATION TECHNIQUES

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ABSTRACT

Restoring data from a degraded document image is a most important process in many applications. Those degraded document images are taken from the DIBCO (Document Image Binarization Contest)-2009 dataset. Segmentation of text from a degraded document images is very difficult task, because those document images are suffering from smear, ink-bleeding, smudge, etc. In this paper, we propose a document image binarization technique that addresses the above issues by using the adaptive local image contrast method. In the proposed technique, first we are performing the preprocessing step in order to eliminate the noise in the image by using the mean filter and then an adaptive contrast map is constructed by using the histogram equalization method for the preprocessed document image. Next step is to detect text stroke edge pixels of the document images by using the Canny's edge detector. The document text is then segmented by using the local threshold that is estimated based on the intensities of detected text stroke edge pixels. The proposed method is simple and it involves minimum parameter calculations. Performance of the proposed method is good compared to the previous by using some of the quality metrics like Peak Signal to Noise Ratio (PSNR), Structural Similarity Index Measure (SSIM), etc.

KEYWORDS: Degradation, Adaptive Image Contrast, Histograms, Image Edge Detection, Pixel Classification, Image Segmentation