

Contrast Enhancement of Color Images with Color Morphing Approach

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Abstract : Low contrast images can result from the wrong setting of image acquisition or poor illumination conditions. Such images may not be visually appealing and can be difficult for feature extraction. Contrast enhancement of color images can be useful in medical area for visual inspection. In this paper, a new technique is proposed to improve the contrast of color images. The RGB (red, green, blue) color image is transformed into normalized RGB color space. Adaptive histogram equalization technique is applied to each of the three channels of normalized RGB color space. The corresponding channels in the original image (low contrast) and that of contrast enhanced image with adaptive histogram equalization (AHE) are morphed together in proper proportions. The proposed technique is tested on seventy color images of acne patients. The results of the proposed technique are analyzed using cumulative variance and contrast improvement factor measures. The results are also compared with decorrelation stretch. Both subjective and quantitative analysis demonstrates that the proposed techniques outperform the other techniques.

Keywords : contrast enhancement, normalized RGB, adaptive histogram equalization, cumulative variance.

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