A FULL−REFERENCE COLOR IMAGE QUALITY MEASURE IN THE DWT DOMAIN (WedAmPO3)

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Abstract :

In this paper, we present a new objective quality measure for color images. In any frequency domain transform, the coefficients in different frequency bands have different magnitudes. The 2−dimensional Discrete Wavelet Transform (DWT) separates a given image into four bands: LL, HL, LH, and HH. After applying the DWT to both the original and degraded images, we compute the absolute value of the difference of the magnitudes in each band, and obtain the standard deviation (SD) of these differences. The proposed measure is defined as the mean of four SD values. Correlation of the subjective ratings and objective scores gives the performance of the measure. A comparison with the peak signal−to−noise ratio (PSNR), and two state−of−the−art metrics, Q and MSSIM, shows that our results correlate better with the judgment of human observers.

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