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A Bar Code Hiding Technique in Color Images Using FFT

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Abstract

A mathematical method for embedding bar code in color images was proposed. First of all, original color image was transformed into 2D FFT space, and the bar code was superimposed on the transformed color image given as a set of pictorial spectra. Then, the pictorial spectra were inversely transformed by applying 2D FFT, to get the original color image in which the bar code was embedded. To extract the original bar code from the color image, 2D FFT was applied. In this process, the superimposition on the absolute value of 2D FFT spectra gave better results than that on the real or imaginary part. In this paper, the difference between these two cases was studied. First, the two resultant color images embedded the bar code were compared to each other. The restorations of bar codes were completed in both cases. Next, the stability of restoration for mismatching between embedding and restoring area was examined. Last, the restoration of embedded image without original image was investigated.

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