Fractal Color Image Compression

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Abstract

In this paper, the fractal compression technique proposed by Jacquin is investigated for 24 bits/pixel color image with some improvements introduced on the IFS matching stage. One of them is using a stopping search condition ($\varepsilon$) when monitoring the minimum matching error. This will reduce the required long fractal coding time. The other is using the domain block position index (PosI) instead of the coordinates $(x_d,y_d)$, to encode the position of best matched domain block. The data of the color component $(R,G,B)$ are transformed to $(Y,U,V)$ components, to take the advantage of the existing spectral correlation to gain more compression. Also the low spatial resolution of the human vision systems to the chromatic components $(U,V)$ was utilized to increase the compression ratio without making significant subjective distortion. The test attained trade-off results is PSNR (33.3) dB with CR (9.72) and encoding time (128.06) sec for Lena (256x256) image.