Abstract

In this paper the RGB image is analyzed through DFT and DCT using MatLab tool. The DFT is the sampled Fourier Transform and therefore does not contain all frequencies forming an image, but only a set of samples which is large enough to fully describe the spatial domain image. The image in the spatial and Fourier domain is of the same size. The Fourier Transform is used when to access the geometric characteristics of a spatial domain image. The
image in the Fourier domain is decomposed into its sinusoidal components, it is easy to observe or process certain frequencies of the image, thus influencing the geometric structure in the spatial domain. A set of DCT domain properties for shifting and scaling by real amounts, and taking linear operations such as differentiation is also described in this paper. The discrete cosine transform (DCT) is a technique for converting an image into elementary frequency components. The DCT coefficients of a sampled signal are subjected to a linear transform, which returns the DCT coefficients of the shifted, scaled and/or differentiated image. The techniques may prove useful in compressed domain processing applications, and are interesting because they allow operations from the continuous domain such as differentiation to be implemented in the discrete domain.

References

- Ken Cabeen and Peter Gent, "Image Compression and Discrete Cosine Transform&quo;
- Syed Ali Khayam, "Discrete Cosine Transform: Theory And its Applications

Index Terms

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Keywords

Dct Linear Transform Dft Image Compression