A Compression Technique for Piecewise Smooth Images based on Transform Coding

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Abstract

Image compression has a wide range of application since it leads to reduction in storage space and easy transmission. Piecewise smooth image consists of sharp edge boundaries and smooth interior surfaces. This paper deals with compression of Piecewise smooth images using Graph Fourier Transform and Discrete Cosine Transform. In order to obtain better quality of reconstructed image blocks contains edge boundaries are transformed using DCT and smooth regions are transformed using both weighted GFT and unweighted GFT. In order to reduce the computational complexity, low pass filter and down sample a high resolution pixel block to obtain a low resolution one at the encoder, so that LR-GFT can be employed. At the decoder upsampling and interpolation are performed so that sharp edge boundaries can be preserved.

References

1. Wei hu, Gene Cheung, Antonio Ortega, Oscar C. Au “Multiresolution Graph Fourier Transform for compression of piecewise smooth images”, IEEE transactions on image
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processing, vol. 24, no. 1, January 2015


Index Terms

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Keywords

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