Video Compression Using Contourlet Transform

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Abstract : Video compression used for channels with limited bandwidth and storage devices has limited storage capabilities. One of the most popular approaches in video compression is the usage of different transforms. Discrete cosine transform is one of the video compression methods that have some problems such as blocking, noising and high distortion inappropriate effect in compression ratio. wavelet transform is another approach is better than cosine transforms in balancing of compression and quality but the recognizing of curve curvature is so limit. Because of the importance of the compression and problems of the cosine and wavelet transforms, the contourlet transform is most popular in video compression. In the new proposed method, we used contourlet transform in video image compression. Contourlet transform can save details of the image better than the previous transforms because this transform is multi-scale and oriented. This transform can recognize discontinuity such as edges. In this approach we lost data less than previous approaches. Contourlet transform finds discrete space structure. This transform is useful for represented of two dimension smooth images. This transform, produces compressed images with high compression ratio along with texture and edge preservation. Finally, the results show that the majority of the images, the parameters of the mean square error and maximum signal-to-noise ratio of the new method based contourlet transform compared to wavelet transform are improved but in most of the images, the parameters of the mean square error and maximum signal-to-noise ratio in the cosine transform is better than the method based on contourlet transform.

Keywords : video compression, contourlet transform, discrete cosine transform, wavelet transform

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