Abstract

A suggested digital image interpolation algorithm based on the contourlet transform is presented in this paper. The use of the contourlet transform improves the regularity of object boundaries in the generated high-resolution images. An edge-based image interpolation technique that uses wavelet transform with symmetric biorthogonal wavelets is used as the initial estimate for the contourlet interpolation algorithm. An iterative projection process is then used to drive our solution aimed towards an improved high-resolution image. Experimental results show that the proposed algorithm objectively and subjectively outperforms other commonly used algorithms such as the bilinear, and linear wavelet algorithms, and also the image interpolation with geometric representations.


- Y. Lu and M. N. Do, "A new contourlet transform with sharp frequency localization;", in Proc. IEEE Int. Conf. on Image Proc (ICIP’2006), (Atlanta, USA), October 2006.


Index Terms

Computer Science | Signal Processing

Keywords

Image Interpolation | Wavelet Transform | And Contourlet Transform