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.
Digital Image Interpolation via the Contourlet Transform

Index Terms

Computer Science  Signal Processing

Keywords

Image Interpolation  Wavelet Transform  And Contourlet Transform