Abstract

Image as conveyor of visual information will be easy interprated in form of high resolution. Low resolution digital image can be repaired to become high resolution image by upscaling. Upscaling is done with interpolation where a unknown value estimated from value which has been known. Some the methods does interpolation in domain spasial where all part of images is made no difference.

In this final project, image upscaling is done by applying interpolation at frequency domain applies method Discrete wavelet transform, where interpolation process is done separately at part of low frequency image and high frequency (edge). Interpolation process is done with estimating fourth of subband wavelet from test image, with different estimation technique to estimate subband low frequency and high frequency.

The upscaling with DWT is influenced by estimation method of subband coefficient and wavelet filters. Approximation subband coefficient are estimated from low frequency image very well by increasing the intensity value with the number of upscaling scale. The result of the image upscaling with Discrete Wavelet Ttransform can maintain information of edge at high resolution image carefully if subband coefficient of high frequency are estimated by method of upsampling-dekomposition DWT, bilinear-dekomposition DWT, and bicubic-dekomposition DWT. while quality as a whole result of upscaling had better value of PSNR if high frequency are estimated that valuable are null.

Keywords: Discrete wavelet transform, up-scaling, down-scaling, image interpolation, filter.
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