



**SURVEY ARTICLE**

# A Survey on Wavelet Domain Techniques for Image Super Resolution

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**Abstract**— *The main objective of super-resolution (SR) imaging is to reconstruct a high-resolution (HR) image of a scene from one or more low-resolution images of the scene. In resolution enhancement of images, the main loss is on the high frequency components (edges) of the image. This is due to the smoothing caused by interpolation. Hence in order to enhance the quality of the super resolved image, preserving the edges is essential. In this paper we are studying various image resolution enhancement techniques that utilize Wavelet Transform (WT) techniques. This paper compares various image resolution enhancement methods that employs discrete wavelet transform (DWT), stationary wavelet transform (SWT), dual tree complex wavelet transform (DT-CWT), wavelet zero padding (WZP), cycle spinning (CS). To enhance the contrast of the image singular value decomposition (SVD) is employed with wavelet transform, in which singular value matrix gives the illumination content. By modifying that value the contrast of the given image is increased. Simulation experiments have been performed on a variety of images using Matlab, and results were compared using peak signal to noise ratio (PSNR).*

**Keywords**— *Discrete wavelet transform (DWT), Dual tree complex wavelet transform (DT CWT), Peak signal to noise ratio (PSNR), Stationary wavelet transform (SWT), Singular value decomposition (SVD), Super resolution (SR)*

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