Available Online at www.ijcsmc.com

International Journal of Computer Science and Mobile Computing

A Monthly Journal of Computer Science and Information Technology

ISSN 2320–088X

IJCSMC, Vol. 2, Issue. 4, April 2013, pg.363 – 368

RESEARCH ARTICLE

IMPROVED IMAGE WATERMARKING WITH CURVELET WAVELET

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Abstract— "Improved Method of Image Watermarking Using Cooley-Tukey Algorithm" presents a transformation and watermarking for Image Authentication. Initially, an image is taken and it is transformed by using Curvelet Transformation. This transformation was developed in order to represent edges along curves more efficient than the traditional transformations. The concept of Fast Fourier Transformation (FFT) algorithm is used in this paper to perform Curvelet Transformation. There are many FFT algorithms exists and the most common FFT is the Cooley-Tukey algorithm, which is a divide and conquer algorithm. A secret image is taken and embeds with that transformed image. Then the Inverse FFT is applied to obtain the watermarking image. Finally, the embedded secret image is extracted using extraction technique. The resultant extract image is compared with the original secret image by calculating ratios using Peek signal to Noise Ratio (PSNR). PSNR calculation of 2 images, one original and an extracted image, describes how far 2 images are equal. The higher the PSNR, the better the quality of the compressed or reconstructed image.

Key Terms: - Watermarking; Curvelet Transform; FFT; Cooley Tukey

Full Text: http://www.ijcsmc.com/docs/papers/April2013/V2I4201390.pdf