

IMAGE FUSION WITH EDGE & CONTRAST ENHANCEMENT USING SVD AND SOBEL OPERATOR

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ABSTRACT- Image fusion is the procedure by which two or more images are combined into a single image retaining the significant features from each of the original images. In this paper a new fusion technique has been proposed based on the discrete wavelet transform. For edge and contrast enhancement we use singular value decomposition and sobel operator. The input image is decomposed into four frequency sub band images using DWT, and then singular value decomposition is applied on low-low sub band image, were as sobel operator is applied on low-high, high-low, and high-high frequency sub band images. The proposed technique has been compared with existing pixel based image fusion techniques such as simple averaging, simple pixel maximum and pixel minimum, principal component analysis, and discrete wavelet transform. We describe experimental results and comparative analysis of performance metrics that shows the superiority of the proposed method over existing methods.

KEY WORDS: Contrast Enhancement, Discrete Wavelet Transform, Edge Enhancement, Image Fusion, Singular Value Decomposition, Sobel Operator.

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