IMAGE FUSION USING FRACTIONAL LOWER ORDER MOMENTS

S. THIRUPATHI REDDY[1] & T. TIRUPAL[2]

[1]M.Tech Student, Department of ECE, Narayana Engineering College, Nellore, Andhra Pradesh, India

[2]Associate Professor, Department of ECE, Narayana Engineering College, Nellore, Andhra Pradesh, India

ABSTRACT

Image Fusion is a process of integrating complementary information from multiple images of the same scene such that the resultant image contains a more accurate description of the scene than any of the individual source images. A method for fusion of multifocus images is presented. First, multifocus images are decomposed using a discrete wavelet transform (DWT). Then an algorithm is proposed in the multiscale wavelet domain to develop a novel fusion rule based on fractional lower order moments. The experimental results on several pairs of multifocus images indicate that the proposed algorithm is superior to an existing algorithm by achim et al., in terms of spatial frequency (SF), fusion quality measure (Q_W), edge information preservation ($Q^{AB/F}$) and various other image quality metrics. The performance of the proposed algorithm is also compared with simple average and Principal Component Analysis (PCA) techniques.

KEYWORDS: Image Fusion, Moments, Principal Component Analysis, Wavelet Transform