

# Abstract

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## **A Novel Image Fusion Algorithm based on Image Complexity Measurements for multi-focus images**

Abstract Image fusion extracts perceptibly clearer images from a set of distorted images of the same scene. Image fusion algorithms preserve complementary data &#97;&#110;&#100; minimize noise. This paper presents a novel algorithm for image fusion that utilizes complexity measurements to form the new image. Original images are converted to binary images, divided into blocks, &#97;&#110;&#100; then a fused image is acquired using one of five complexity measurements. The paper utilizes two quality measurements to evaluate the performance of the algorithms. The experiments were performed on one set of reference input images and four sets of non-reference input images. Experimental results show that the Length of Black and White Border outperformed all other complexity measurements. The proposed algorithm was compared against spatial frequency algorithm. Keywords Image Fusion, Multi-Focus images, Spatial Frequency, Complexity Measurement