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A non-reference image fusion metric based on mutual information of image features. (English) [Zbl 1250.68280](#)

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Summary: The widespread usage of image fusion causes an increase in the importance of assessing the performance of different fusion algorithms. The problem of introducing a suitable quality measure for image fusion lies in the difficulty of defining an ideal fused image. In this paper, we propose a non-reference objective image fusion metric based on mutual information which calculates the amount of information conducted from the source images to the fused image. The considered information is represented by image features like gradients or edges, which are often in the form of two-dimensional signals. In this paper, a method of estimating the joint probability distribution from marginal distributions is also presented which is employed in calculation of mutual information. The proposed method is compared with the most popular existing algorithms. Various experiments, performed on several databases, certify the efficiency of our proposed method which is more consistent with the subjective criteria.

MSC:

[68U10](#) Computing methodologies for image processing

[68T45](#) Machine vision and scene understanding

Cited in **3** Documents

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