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Infrared and visible image fusion using co-occurrence filter

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Abstract

In this paper, an effective image fusion method for infrared image and visible image is proposed for generating a high-quality fused image to deal with the issue that existing image fusion methods suffer from loss of tiny details. The major contributions are as follows: 1) We apply the Co-occurrence filter (CoF), a recently proposed edge-preserving technique, to image fusion and propose a CoF-based image fusion framework to merge tiny details of the multiple input images. The fusion processing is respectively performed on the base layer and the detail layer, which are decomposed by the simple gaussian filter. 2) We propose a novel strategy to fuse the base layers and detail layers. The CoF is adopted directly to fuse the detail layer and an iterative CoF is used to fuse the base layer. It is demonstrated through experimental results and evaluations that the proposed method outperforms the state-of-the-art fusion methods with respect to edge preserving by both subjective evaluation and objective assessment.

Keywords: co-occurrence filter, image fusion, boundary preserving, two-scale

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