

## Multiple Fusion Based Single Image Dehazing

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**Abstract :** Haze is an atmospheric phenomenon that significantly degrades the visibility of outdoor scenes. This is mainly due to the atmosphere particles that absorb and scatter the light. This paper introduces a novel single image approach that enhances the visibility of such degraded images. In this method is a fusion-based strategy that derives from two original hazy image inputs by applying a white balance and a contrast enhancing procedure. To blend effectively the information of the derived inputs to preserve the regions with good visibility, we filter their important features by computing three measures (weight maps): luminance, chromaticity, and saliency. To minimize artifacts introduced by the weight maps, our approach is designed in a multiscale fashion, using a Laplacian pyramid representation. This paper demonstrates the utility and effectiveness of a fusion-based technique for de-hazing based on a single degraded image. The method performs in a per-pixel fashion, which is straightforward to implement. The experimental results demonstrate that the method yields results comparative to and even better than the more complex state-of-the-art techniques, having the advantage of being appropriate for real-time applications.

**Keywords :** single image de-hazing, outdoor images, enhancing, DSP

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