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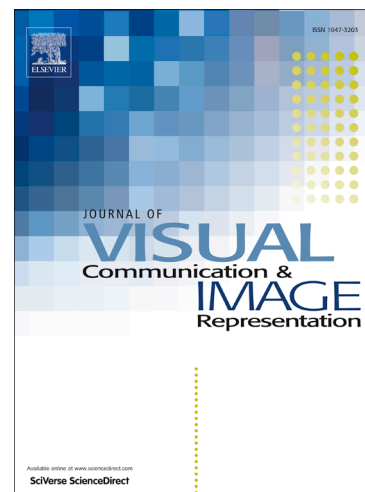
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Edge-Preserving Smoothing Pyramid Based Multi-Scale Exposure Fusion

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Abstract

Multi-scale exposure fusion is an efficient approach to fuse multiple differently exposed images of a high dynamic range (HDR) scene directly for displaying on a conventional low dynamic range (LDR) display device without generating an intermediate HDR image. It can produce images with higher quality than single-scale exposure fusion, but has a risk of producing halo artifacts and cannot preserve details in brightest or darkest regions well in the fused image. In this paper, an edge-preserving smoothing pyramid is introduced for the multi-scale exposure fusion. Benefiting from the edge-preserving property of the filter used in the algorithm, the details in the brightest/darkest regions are preserved well and no halo artifacts are produced in the fused image. The complexity of the proposed edge-preserving smoothing pyramid could be an issue. A hybrid smoothing pyramid is proposed to obtain a good trade-off between the complexity of algorithm and the quality of fused images. The experimental results prove that the proposed algorithms produce better fused images than the state-of-the-art algorithms both qualitatively and quantitatively.

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