Abstract

This paper presents an introduction to novel saliency-aware weighting and edge-aware weighting for HDR images. These techniques are incorporated into an existing guided image filter to form a perceptually guided image filter. The saliency-aware weighting and the new filter are applied to design a new local tone-mapping algorithm for HDR images such that both extreme light and shadow regions can be reproduced on conventional low dynamic range displays. The Visual-Salience-Based Tone Mapping (VSBTM) filter preserves sharp edges in the base layer better than the existing guided filter. Halo artifacts are thus significantly reduced in the tone-mapped image. Moreover, the visual quality of the tone-mapped image, especially attention-salient regions, is improved by the saliency-aware weighting. Pseudo-Multiple-Exposure-Based Tone Fusion (PMEBTF) gives a region-based enhancement on the pseudo-exposures to boost details in the most distinct region. Thereby the region-enhanced pseudo-exposures are fused into an HDR image. The fused image thus enhances details in the bright region of the dark image and the dark region of the bright image.
References


2008 Sarajevo, Bosnia, Herzegovina), vol. 27, no. 4, pp. 1265–1274.


**Index Terms**

Computer Science  
Image Processing

**Keywords**

Edge-aware weighting, high dynamic range (HDR), local filtering, saliency-aware weighting, tone mapping.