Abstract

Since the input image in computer vision and graphics containing various texture/structure patterns provides rich visual information, how to properly decompose them is a challenging problem. Recent developments in high-contrast detail smoothing show that how they define edges and how this prior information guides smoothing are two key points. In this paper, we present a novel Log-transform weighted total variation (LWTV) method, which employs the signed gradient summation of Log-transform pixels at neighbor window as data-fidelity weight. Specifically, LWTV substantially improves the decomposition for the regions with faint pixel-boundary and alleviates the drawback of slightly blurry. Experimental results demonstrate that the proposed method has appearance performance on image with abundant uniform textural details.

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Index Terms

Computer Science    Image Processing

Keywords

Image smoothing, structure preserving, texture eliminating, Log-transform, total variation.