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.


Index Terms

Computer Science  Image Processing

Keywords

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