Efficient local and global contour detection based on superpixels

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Efficient local and global contour detection based on superpixels

Xuan-Yin Wang[a], Chang-Wei Wu[a,*], Ke Xiang[a], Wen Chen[b]

[a] *Zhejiang University, State Key Laboratory of Fluid Power and Mechatronic Systems, Mechanical Engineering, 38 Zheda Road, Hangzhou, China, 310027*
[b] *Shanghai Key Laboratory of Aerospace Intelligent Control Technology, Shanghai Institute of Spaceflight Control Technology, Shanghai, China*

Abstract

In this paper, two contour detection methods, inspired from gPb framework, are introduced and applied to saliency object segmentation. To improve the computational efficiency of gPb method, superpixels are introduced into the computational processes of both mPb and sPb. Specifically, for mPb, only the pixels within a given distance from the boundaries of superpixels are considered. For sPb, graph is constructed from superpixels and some selected pixels. Experiments on a public available BSDS500 image dataset show that higher efficiency could be achieved by the proposed local contour detection method, mPbSP, than mPb while with competitive results. Besides, compared with state-of-the-art methods, better results could be produced by the proposed global contour detection method, gPbSP, when a relatively small distance is considered. Moreover, experiments on PASCAL VOC2012 training segmentation dataset show that competitive results of saliency object segmentation could also be produced by the proposed methods with much less time.

Keywords: contour detection, segmentation, superpixels, saliency object segmentation

*Corresponding author
Email addresses: xywang@zju.edu.cn (Xuan-Yin Wang), chgw_88@163.com (Chang-Wei Wu), kxiang@zju.edu.cn (Ke Xiang)