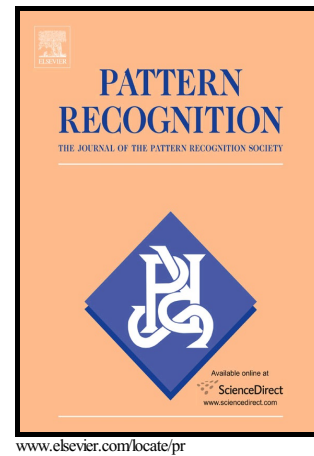


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Detection based on Superpixel Segmentation

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Complex Networks Driven Salient Region Detection based on Superpixel Segmentation

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Abstract

In this paper, we propose an efficient method for salient region detection. First, the image is decomposed by using superpixel segmentation which groups similar pixels and generates compact regions. Based upon the generated superpixels, similarity between the regions is calculated by benefiting from color, location, histogram, intensity, and area information of each region as well as community identification via complex networks theory in the over-segmented image. Then, contrast, distribution and complex networks based saliency maps are generated by using the mentioned features. These saliency maps are used to create a final saliency map. The applicability, effectiveness and consistency of the proposed approach are illustrated by conducting some experiments using publicly available datasets. The tests have been used to compare the proposed method with some state-of-the-art methods. The reported results cover qualitative and quantitative assessments which demonstrate that our approach outputs high quality saliency maps and mostly achieves the highest precision rate compared to the other methods.

Keywords

superpixel; segmentation; salient region detection; saliency map; complex networks

I. INTRODUCTION

A Human Visual System (HVS) [1] is capable of easily detecting and separating the important parts of a given image from the remainder of the image; the latter part usually includes background information. The implementation

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