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## Abstract

In this paper, we propose a novel saliency detection algorithm. The saliency of an image element is defined not only as its contrast to the background but as its similarity to the foreground. First, we extract background seeds as well as their spatial layout information from image boundaries to compute the background-based saliency map. Second, we generate a compact foreground region from the first-stage saliency map to describe the appearance and location of the salient object and calculate the foreground-based saliency map accordingly. We integrate these two saliency maps and further refine the unified one to obtain a more smooth and accurate saliency map. Each component of the presented algorithm is evaluated on the public available datasets and the experimental results also show that the presented algorithm achieves favorable performance compared to the state-of-the-art methods.

*Keywords:*

Saliency detection, Background, Foreground, Saliency map

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## 1. Introduction

The biological visual system tends to locate the most attractive regions in a scene rapidly and then primarily processes the information of such areas[1]. In recent years, saliency detection has been further studied to simulate this special characteristic of the human vision system, and numerous computational models have been proposed to detect such attractive regions. As a preprocessing operation, saliency detection can also benefit many other computer vision tasks, such as image compression[2, 3], image categorization[4] and object localization[5].

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