Salient object detection

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1- What is Salient Object Detection

“Salient object detection” or “Salient object segmentation” is divided into two part: 1) detecting the most salient object and 2) segmenting the accurate boundary of that object. The first stage does not necessarily need to be limited to one object. The majority of existing models have attempted to segment the most salient object, although their prediction maps can be used to find several objects in the scene. The second stage falls in the realm of classic segmentation problems in computer vision but has certain differences.

2- Salient Object Detection Models

In the past decades, a lot of approaches have been proposed for detecting salient or interesting objects in images. These approaches share the following two major attributes:

(1) Block-based vs. Region-based analysis. In existing works, there are mainly two kinds of visual subsets, including blocks and regions 2 , that are used to detect salient objects. Blocks are usually adopted by many early approaches, while regions are increasingly popular with the development of superpixel algorithms.

(2) Intrinsic cues vs. Extrinsic cues. Intrinsic cues are extracted only from the input image itself to pop-out targets and suppress distractors. However, intrinsic cues are insufficient for complex images that targets and distractors may share some common visual attributes to distinguish them. Therefore, they incorporate extrinsic cues such as user annotations, depth map, or statistical information of similar images to facilitate detecting salient objects in the image.

we divide most of existing salient object detection approaches into three major subgroups according to such two attributes, including *block-*

based models with intrinsic cues, *region-based model with intrinsic cues*, and *models with extrinsic cues*.

2-1- Block-based Models with Intrinsic Cues

In this subsection, intrinsic cues are extracted from blocks. These refrences, [1]-[2]-[3]-[4]-[5]-[6]-[7]-[8]-[9]-[10]-[11]-[12], proposed block-based models to utilize intrinsic cues.

2-2- Region-based Models with Intrinsic Cues

In the second subgroup adopt intrinsic cues extracted from image regions to estimate their saliency scores. References belong to this subgroup: [3]-[13]-[14]-[15]-[16]-[17]-[18]-[12]-[19]-[20]-[21]-[22]-[10]-[23]-[24]-[25]-[8]-[26]-[27]-[28]-[29]-[30]-[31]-[32]-[33]-[34]-[35]-[36]-[37]

2-3- Models with Extrinsic Cues

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