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# Image Co-segmentation Using Dual Active Contours

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## Abstract

In this article a novel algorithm is proposed to segment a pair of images simultaneously (co-segmentation) for extracting common objects. The task of co-segmentation has been performed using the dual geometric active contour model. Both the contours (of the objects) are initialized and evolved simultaneously in the given images. As the contours proceed towards the boundary of the common object(s) present in the images, energy value gets reduced. The contours are allowed to evolve until both the inner and the outer contours coincide at the object boundary. The resultant images formed are known as the co-segmented images. The proposed approach is evaluated on twenty benchmark datasets and compared with the state of the art methods. Result show that the performance of the proposed method is better than the compared methods.

*Keywords:* Co-segmentation, Active Contour Model, Chan-Vese Active Contour, Dual Geometric Active Contours, Inner Contour, Outer Contour, Gradient Descent.

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## 1. Introduction

Detection of similar regions (common object(s)) between images is an area of interest in the field of computer vision. The main idea behind detection of similarity between images is to establish a relation between the images. One of  
5 the ways of establishing similarities among the images is by detecting common

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