

Segmentation of Video Image Using Changing Detection and Block Based Approach

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Abstract Segmentation of object from video image sequence is very important in many aspects of multimedia application. We present an approach to discover and segment foreground object(s) in video. Our approach is to identify 8x8 blocks in any frame and compute a series of binary partitions among those blocks and compare each frame of blocks finding change of all frames in images. Our approach is automatically segmentation of object on the persistent foreground regions of interest. We apply our method to challenge standard videos, and show competitive or better results than the state-of-the-art.

Keywords Video image processing · Image segmentation · Changing detection · Block processing

1 Introduction

Image processing has a wide range of practical applications, such as car assembly, robot vision, airport security, object recognition, criminal investigation, and medical image analysis for robotic doctor. Image segmentation is an image processing technique to separate mutually exclusive homogeneous regions of interest of an image. Segmenting objects in an image play a fundamental role in the field of image processing and image analysis. Segmenting objects in an image is a very difficult and challenging task due to huge number of objects and the variations among the objects in terms of color, intensity and locations. [12]

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Image segmentation subdivides the image into its constituent objects. It has many approaches. Pixel based segmentation, which uses only pixel appearance to assign a label to a pixel [10, 11]. Region based segmentation, the algorithm detects for valid segments at each scale further segments extracted at various scale are integrated to get the final result [13]. In graph-based labeling methods [3, 14], a global energy functions defined depending on both appearance and image gradients. Mean shift based segmentation is been widely-used for the segmentation which includes two steps, filtering the original image data in feature space and clustering of the filtered data points. [5]

Finding moving objects in image sequences is one of the most important tasks in computer vision. Segmentation of moving object in image sequence plays an important role in image sequence processing and analysis. Our paper is to describe the boundaries of all moving and static objects occurring in video. In general, objects are spatially unified and characterized by locally smooth motion trajectories. Therefore, they occupy regions within each video frame. Image segmentation base algorithms are many processes, such as watershed transform and color segmentation on each frame to separate a frame into many homogeneous regions. By combining motion information derived with motion estimation, optical flow, or frame difference, regions with motion vectors different from the global motion are merged as foreground regions.

Our approach identify block base algorithm for compare frame of video images sequence. The objectives of this paper are to get and identify video image frames and moving objects from the standard video images. Our approach will be find reasonable image frames and improve analysis quality for video object segmentation.

2 Related Work

A. Criminisi group presented GeoS, a new algorithm for the efficient segmentation of n-dimensional image and video data. They proposed new method to get efficient geodesic distance computation was used to propose a set of spatially smooth, contrast-sensitive segmentation hypotheses. Their Advantages include: i) computational efficiency with high segmentation accuracy; ii) the ability to estimate an approximation to the posterior over segmentations; iii) the ability to handle generally complex energy models. Comparison with max-flow indicates up to 60 time greater computational efficiency as well as greater memory efficiency. GeoS is validated quantitatively and qualitatively by thorough comparative experiments on existing and novel ground-truth data. Numerous results on interactive and automatic segmentation of photographs, video and volumetric medical image data were presented.[4]

B. Qi et. al purposed a hierarchical differential GME oriented to object segmentation. A combination of 3-step search and motion vector prediction was proposed for initial estimate. Two robust estimators were also proposed: to estimate global motion in the first frame and to reject outliers using object information. Subjective and objective