

An Object Segmentation Method For Surveillance Application

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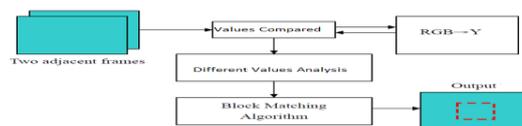
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Abstract - Video tracking is the process of locating a moving object (or multiple objects) over time using a camera. It has a variety of uses, some of which are: human-computer interaction, security and surveillance, video communication and compression, augmented reality, traffic control and video editing. In this paper, we present a novel block based object mask segmentation method for silhouette tracker initialization. Now a day everywhere use surveillance cameras. This type cameras using methods is intelligence tasks. Its work is motion detection, human identification, etc. now a day one type of camera is track human and vehicles. This type of camera use tracks live and tracker. A simple bounding box contains too much irrelevant background objects, while a manually specified mask could provide accurate silhouette but this also requires lots of interactive which greatly limits its practicality. One typical requirement is to track suspicious humans or vehicles in the cameras' live or recorded footages, and over the years researchers have proposed different tracking methods, such as point tracking, kernel tracking and silhouette tracking to support this requirement.

keywords- silhouette tracking, object mask segmentatio

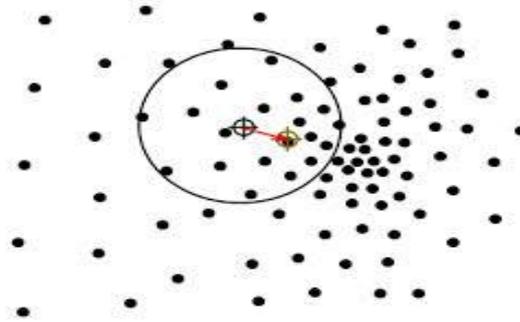
1.INTRODUCTION

Object tracking is important method for tracking an object from surveillance camera. This tracking method observes the motion of an object. The object can be tracked as frame by frame and here we are using silhouette algorithm for tracking an object . Major role in this technique is to detect the abnormal activities that can be tracked from the video.The tracking method avoids problems like illumination ,overlapping objects and shape of the object. BMA algorithm used for matching the object and it classifies the normal and abnormal objects.researches proposed based on different tracking method like kernel,point,and Silhouette based trackingin these paper silhouette is used but it also uses point and kernel tracking method



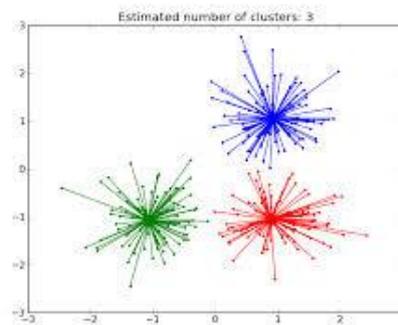
1.1 Kernel based tracking:

In this type of tracking the kernel refers to the object representations of rectangular or ellipsoidal shape and object appearance. The objects are tracked by calculating the motion of the kernel on each frame. These algorithms differ in terms of the appearance representation used, the number of object tracking, and the technique used for estimation of object motion. These methods are divided into following sub-categories, namely, • Tracking Using Template and Density-Based Models. • Tracking single objects and multiple objects. Steps for kernel tracking Probabilistic distribution of the target object is obtained in first frame using color feature. Compare the distribution of the first frame with consecutive frame. Bhattacharya coefficient is used to find the degree of similarity between the frames. Loop will continue till the last frame. From real-time, representation of objects by means of geometric shape is very usual. But one of the limits of geometric shapes is that parts of the objects may be left outside.



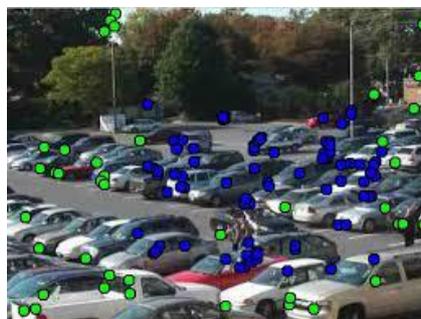
1.2 .Silhouette based tracking:

Some object will have complex shape such as hand, fingers, shoulders that cannot be well defined by simple geometric shapes. Silhouette based methods afford an accurate shape description for the objects. The aim of a silhouette-based object tracking is to find the object region in every frame by means of an object model generated by the previous frames. This model can be in the method of a color histogram, the object contour or object edges. The Fig 1 (a) shows a flexibility of tracking by tracing the edges and Fig 1(b) shows the grid position encodes the Euclidean Distance between a selected using the mouse event function in OpenCV. Once the object has been selected they are tracked for upcoming frames. Here they are some frame screenshot are taken and attached below. They contain tracking of object of different frames. During the tracking more than one object is selected and performs noise removal, overlapping of objects. Here information on rectangle box for every object will not be lost because it will overcome the problem of occlusion.



1.3. Point trackin

In point tracking objects are tracked based on set of points on the objects. we can use the tracking for object estimation, motion detection



2.MOTION VECTOR CONSISTENCY MODEL AND BLOCK GROUPING CRITERION

Motion vector consistency model

Let $B(m,n)$ denotes the block with block size $W*w$ in the m -th column and n -th row of the current frame; and let $MV(m,n)=[MV_x(m,n),MV_y(m,n)]^t$ denotes the motion vector of $B(m,n)$ and $B(m',n')$ in the current frames as depicted .

$$(m'W-mW)(MV_x(m',n')-MV_x(m,n))+(n'W-nW)(MV_y(m',n'))=0$$

It is simplified as

$$[m' - m, n' - n][MV(m', n') - MV(m, n)] = 0.$$

$$M(s,t,A,B)=||MCI(A,s)-MCI(B,s)||+||MCI(A,t)-MCI(A,t)-MCI(B,t)||(3)$$

S:current block

T:neighbouring block

A:candidate object A

B:candidate object B

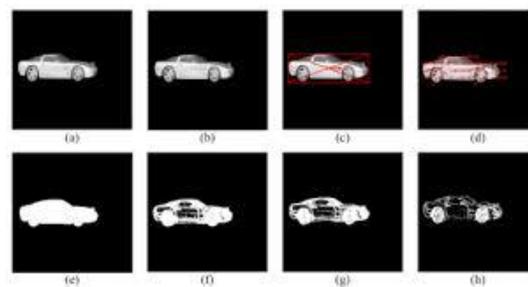
MCI(A,x):MCI between object A and block x

MCI(B,x):MCI between object B and block x

3. PROPOSED METHOD

3.1 Motion Vector Extraction

The compressed video extracted from motion vector this are estimated at video encoding phase



3.2 Podium dataset

This dataset has 160 video frames. Pb tracker result initialized with a simple bounding box on the first frame and no object mask provided in the following frame.



4. CONCLUSION

In this paper, graph cut optimization process is used to do object segmentation. Tracking the abnormal activity of the object and classifying normal and abnormal based on the BMA algorithm. Tracking done on the dynamic background

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