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A study for moving object tracking in scene changing enviroment

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1 Introduction

A field of the operating of an image sequence,object extracting and tracking is a fundamental and very difficult topic. It is necessary to estanblish a technique of object extracting and tracking for not only patarn recognition but also coding image. And this technique can apply to many field. Many methods for tracking of a moving object whith information of image have been proposed.Two of the technique on the based on the Region Segmentation, and based on the contour extraction of target can divide it. The method for tracking based on the Region Segmentation, tracks by using the region where be divided for the feature (color, optical flow, e.g.) in the image.This object tracking becomes possible by corresponding that Region are matched by the feature between the different frame images even when some targets move multiple arbitrarily.Although there are many cases that it becomes necessarily other complex processes to make both correspond because a divided Region doesn't always align with the target.

The method for tracking based on the contour is extracted in the image becomes a problem whether the contour of the target which became stable how is extracted. The method for tracking based on the contour is extracted in the image can divide two method.The first method of tracking based on the contour is technique of edge extracting. It is difficult to join edge point only with local information of countour without knowledge.

It was proposed to solve those problems that the method for tracking makes use of Active Contour Model (Snakes) which the contour can be connected even when the contour of target in the image is partly missing by noise, and the contour which be extracted in the image became stable.

Especially Snakes is very useful of method of object tracking in image sequence because Snakes can use result of previous frame as a initial value of next frame.

The method for tracking makes use of Snakes has both property of the method for tracking based on the contour is extracted in the image and property of the method based on the territory division for reason of closed a curved line (region) which can be extracted by Snakes.

2 Problems of Previous Method

But usual method for object tracking with Snakes have two problems as following.

- When objects overlaped each other,it is difficult to decide track of object.

When objects overlaped each other,Snakes make two contours unify one contour.And when objects separate each other again,Snakes make a contour separate two contours.But it is dificult to corespond to same object between before unification of contours and after separation of contour with usual method.Because of using only information of Snakes region just before unification of contours.

- It is difficult to track object in scene changing enviroment.

Usual method with Snakes use image of difference from background and image of difference between previous frame and next frame.it is difficult to track object with such as image in scene changing enviroment.

3 Proposed Method

In this paper, a new method for tracking of target objects in scene changing enviroment and correctly deciding of trajectory proposed to cope with those problems.

A new method for tracking of moving objects which has two characteristics and to propose explains how to track it in the following.

- Supervision of Snakes regions at all time and correct deciding of trajectory.

Usual method of object tracking with Snakes is difficult to corespond to same object between before unification of contours and after separation of contour. Because of using only information of Snakes region just before unification of contours.but if these snakes unified other contour contain other object in past, it is difficult to decide of trajectory only with information of Snakes region just before unification of contours.Therefore to cope with this problem we puropose new method which is supervision system of Snakes regions at all time. If Snakes unify contours,system record region information of Snakes at same time. And if contour of Snakes separate ,system can decide correct trajectory.

- To cope with tracking object in scene changing enviroment.

We use new image energy of Snakes which is proposed by K.P.Ngoi. This new image energy of Snakes use region color of target object. And Snakes catch targets object with there region color infomation. Therefore it is possible to track target object in scene changing enviroment.

4 Conclusion

We proposed new method of object tracking with Snakes and it is possible to track object in scene changing enviroment. Although there are some conditions that object tracking can't the target, and can't trajectory when proposed a new method for tracking applied. if region color of target object is similar to background, it is impossible to track object. And this method can not tracking target object automaticaly.