Abstract

Identifying moving objects from a video sequence is a fundamental and critical task in many computer vision applications. We develop an efficient adaptive object segmentation algorithm for color video surveillance sequences; background is modeled using Multiple Correlation Coefficient (R_{a,b,c}) using pixel-level based approach. Segmented foreground generally includes self shadows as foreground objects since the shadow intensity differs and gradually changes from the background in a video sequence. Moreover, self shadows are vague in nature and have no clear boundaries. To eliminate such shadows from motion...
segmented video sequences, we propose an algorithm based on inferential statistical Difference in Mean (Z) method. Self shadow eliminated foreground contains cast shadows. Where, cast shadows produce troublesome effects for video surveillance systems, typically for object tracking from a fixed viewpoint. It yields appearance variations of objects depending on whether they are inside or outside the shadows. To eliminate cast shadows from video sequences, we propose an algorithm based on the fact that, cast shadow points are usually adjacent to object points and are merged in a single blob on the edge of the moving objects. Also cast shadow occurs only at run time (as objects move in the scene). The approach uses the Standard Scores (S) to build statistical model. This statistical modeling can deal with scenes with complex and time varying illumination. S models are constructed and updated for every inputted frame. Results obtained with different indoor and outdoor sequences show the robustness of the approach.

Reference

- Thomas B. Moeslund et al,"A Survey of Advances in Vision Based Human Motion Capture and Analysis", Computer Vision and Image Understanding, October 2006.

Adaptive Object Segmentation from Surveillance Video Sequences


**Index Terms**

Computer Science | Pattern Recognition
Key words

Video surveillance

Object segmentation

Motion segmentation

Self shadows

Cast shadows