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Detection of moving objects based on enhancement of optical flow [☆]

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Abstract

Motion detection is one of the key issues in intelligent video surveillance, traffic monitoring and video-based human computer interaction. In this paper, we have efficiently detected the moving objects by computing the optical flow between three consecutive frames. The proposed method first filters out noise in individual frames using Gaussian filter. Next, it computes the optical flow between (a) the current frame and the previous frame and (b) the current frame and the next frame separately. Subsequently, it combines both the optical flow components to compute the gross optical flow. An adaptive thresholding post-processing step is executed so as to remove the spurious foreground objects. Moving objects are then detected using morphological operation on the equalized output. The method has been conceived, implemented and tested on a set of real video data sets. The experimental results exhibit satisfactory performance when compared with other existing methods.

Keywords: Optical flow, motion detection, equalization, adaptive thresholding, Gaussian filter

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