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Detection of Motion in Video Frame Extraction Process on Canny Edge Detector Using Gmm Algorithm

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Abstract

This paper presents a technique for motion detection that incorporates several innovative mechanisms. For example, our proposed technique stores, for each pixel, a set of values taken in the past at the same location or in the neighborhood. It then compares this set to the current pixel value in order to determine whether that pixel belongs to the background, and adapts the model by choosing randomly which values to substitute from the background model. This approach differs from those based upon the classical belief that the oldest values should be replaced first. Finally, when the pixel is found to be part of the background, its value is propagated into the background model of a neighboring pixel. We describe our method in full details (including pseudo-code and the parameter values used) and compare it to other background subtraction techniques. Efficiency figures show that our method outperforms recent and proven state-of-the-art methods in terms of both computation speed and detection rate.

In this project, we propose a universal sample-based background subtraction algorithm, called motion detection, which combines three innovative techniques. First, we propose a classification model second, we explained how motion detection can be initialized with a single frame. Finally, we presented our last innovation: an original update mechanism.

Keywords: Motion Detection

Introduction

This paper presents a technique for motion detection that incorporates several innovative mechanisms. For example. our proposed technique stores, for each pixel, a set of values taken in the past at the same location or in the neighborhood. It then compares this set to the current pixel value in order to determine whether that pixel belongs to the background, and adapts the model by choosing randomly which values to substitute from the background model. This approach differs from those based upon the classical belief that the oldest values should be replaced first. Finally, when the pixel is found to be part of the background, its value is propagated into the background model of a neighboring pixel. We describe our method in full details (including pseudo-code and the parameter "E' and compare it to other background techniques. Efficiency figures shown that our method outperforms recent that our methods both computation speed and detection rate.

In this paper, we propose a universal sample- based background subtraction algorithm, called vibe. which combines three innovative techniques. First I propose a classification model second, I explained how vibe can be initialized with a single frame. Finally, I presented our last innovation. An original update mechanism.

Existing System

Background estimation is formulated as an optimal labeling problem in which each pixel of the background image is labeled with a frame number, indicating which color from the past must be copied. The author's proposed algorithm produces a background image, which is constructed by copying areas from the input frames. Impressive results are shown for static backgrounds but the method is not designed to cope with objects moving slowly in the background, as its outcome is a single static background frame.

Disadvantages

- The existing background model is discarded and a new model is initialized instantaneously.
- In many situations, small displacements of the camera are encountered. These small displacements are typically due to vibrations or wind, and, with many other techniques,

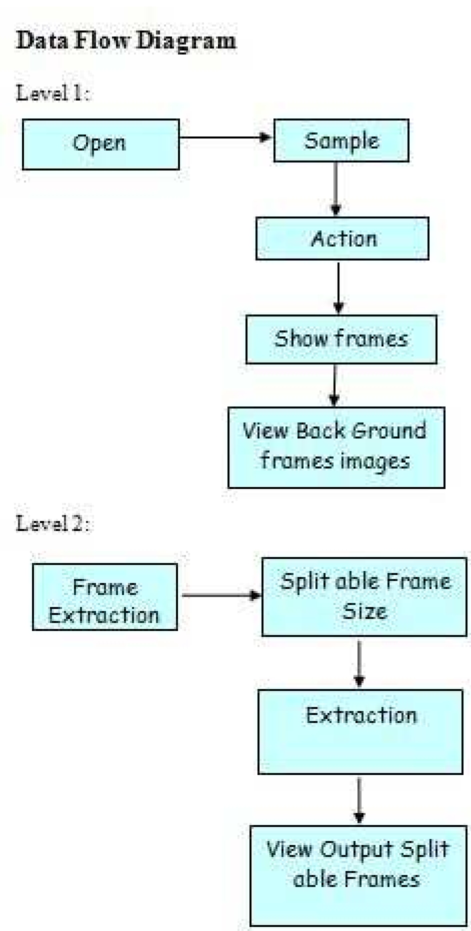
they cause significant numbers of false foreground detections.

Proposed System

The major advantage of this approach lies in the fact that compressive sensing estimates object silhouettes without any auxiliary image reconstruction. On the other hand, objects in the foreground need to occupy only a small portion of the camera view in order to be detected correctly. Background subtraction is considered to be a sparse error recovery problem . These authors assumed that each color channel in the video can be independently modeled as the linear combination of the same color channel from other video frames.

Advantages

- The background model, an advantage for image processing solutions embedded in digital cameras and for short sequences.
- The proposed to automatically determine the parameters of the GMM algorithm.



Experimental Setup

Figure(a) shows the function of Action Recognition in the original Image (b) action Recognition (c). It shows the Frame Extraction Function in original Image.

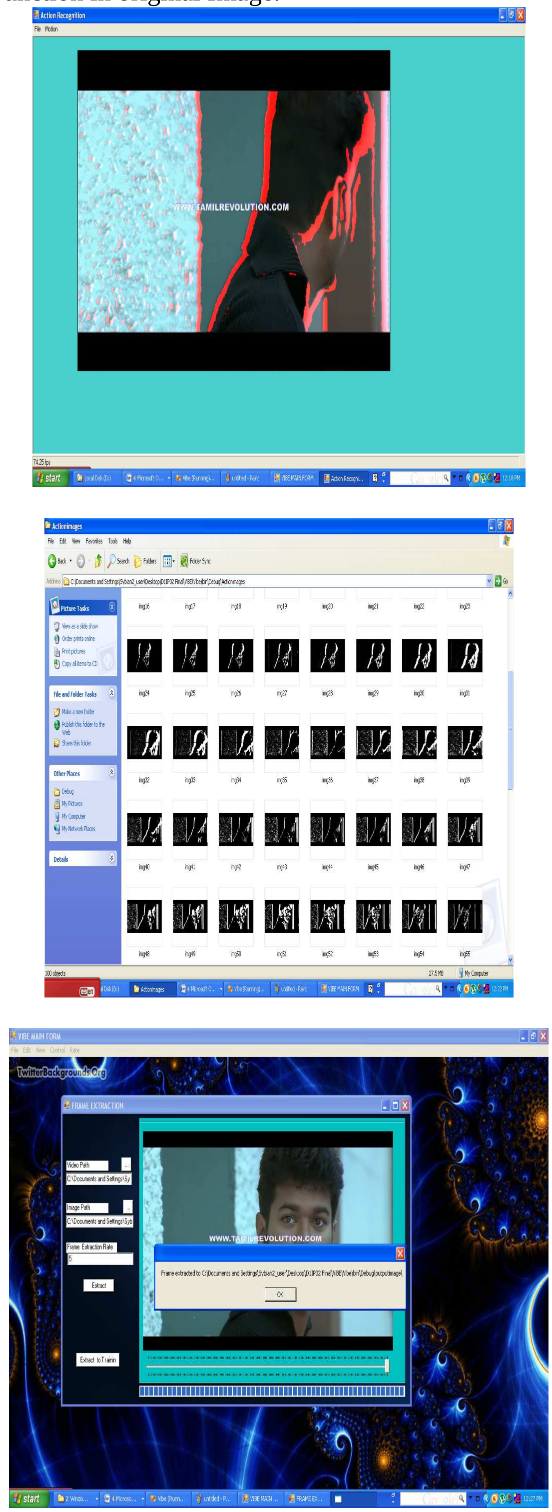


Figure (a) Action Recognition, b) output Image, c) Frame Extraction.

Conclusion

Background subtraction algorithm, called detection motion, which combines three innovative techniques. First, we proposed a classification model that is based upon a small number of correspondences between a candidate value and the corresponding background pixel model. Second, we explained how Vibe can be initialized with a single frame. This frees us from the need to wait for several seconds to initialize the background model, an advantage for image processing solutions embedded in digital cameras and for short sequences. Finally, we presented our last innovation: an original update mechanism. Instead of keeping samples in the pixel models for a fixed amount of time, we ignore the insertion time of a pixel in the model and select a value to be replaced randomly. This results in a smooth decaying lifespan for the pixel samples, and enables an appropriate behavior of the technique for wider ranges of background evolution rates while reducing the required number of samples needing to be stored for each pixel model. Furthermore, we also ensure the spatial consistency of the background model by allowing samples to diffuse between neighboring pixel models. We observe that the spatial process is responsible for a better resilience to camera motions, but that it also frees us from the need to post process segmentation maps in order to obtain spatially coherent results. To be effective, the spatial propagation technique and update mechanism are combined with a strictly conservative update scheme: no foreground pixel value should ever be included in any background model. After a description of our algorithm, we determined optimal values

for all the parameters of the method. Using this set of parameter values, we then compared the classification scores and processing speeds of Vibe with those of seven other background subtraction algorithms on two sequences. Vibe might well be a new milestone for the large family of background subtraction algorithms.

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