

Ambient Occlusion In Moving Images Using Kalman Filter

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ABSTRACT

In the era of image analysis, the occlusion plays an important role for performance improvement. The occlusion helps to observe the variation of sensors in object analysis. This paper presents the practical implementation of occlusion. The occlusion based observation is useful for image recognition and identification. In the enriched literature the robust and dynamic techniques are available in ambient motion of the image. This paper also extended towards sight for the unusual or undirected images. The motion variation is calculated using a covariance matrix algorithm. The filters will help in finding the reorganization of image in the up, down, right, left positions. We will evaluate the proper circumstances to overcome the low resolution, pixel extraction and region bounding surfaces. There are various techniques used now days for the operations on the image processing in which the Kalman filter has yet not taken any step. Thus the way for the channel to motivate is the trajectory motion for the head angle prediction. The paper concluded with the fruitful observation regarding the step by step implementation of Kalman filter based occlusion for motion based image analysis. The author recommended that the covariance matrix and Kalman filter are the best choice for motion analysis.

Keywords- Pixels, Occlusion, Kalman, Region separation, Feature Extraction, Computer vision, Video signal processing, video surveillance.

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I. INTRODUCTION

This paper gives the exploratory execution of the superior method for discovery of the images occlusion in motion. There will be settled estimation of the image related operations. Pixel Quantization and extraction of pixel components will be finished. The pre-preparing was done with the assistance of image matching based methodology. The implementation was done in the step by step manner. Firstly the test image is chosen. The test dataset contains the gathering of different images for diverse direction and angle based pose. The covariance calculation was executed for every image. The inspiration of this usage is to ascertain the position and heading of every image. The direction or movement of the head –pose depictions of test picture is portrayed in the figure 1.

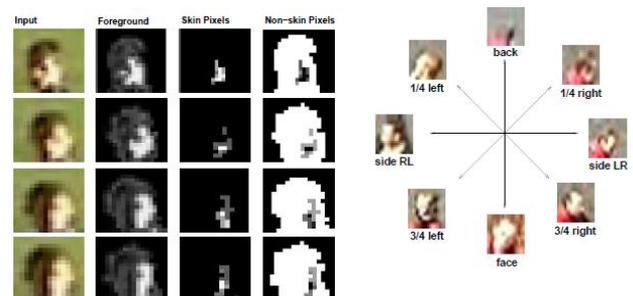


Fig.1. The positions of Head-PoseDescription of sample image.

The region separation will give the specific zone to be utilized for further preparing. It will assist us in finding the Occlusion of the surface for the image operations. This will give the exact data utilizing Kalman channel as a part of the calculations. The advanced method for utilizing the wide information of the further extension is precisely accomplished in the paper. The suppositions that individuals tend to look where they are going which makes head

represent an enlightening purposeful former for person on foot targets. Inside of any following worldwide, knowing an objective destination is fundamental for managing impediments and missing discovery.

1.1 IMAGE DETECTION

This is the beginning phase of the operation; every one of the images to be worked are gotten to by perusing them from the support of image. Images are put away in a dataset. Our pedestrian tracker takes as info the consequences of item recognition and head-posture estimation. These regions are themselves testing, particularly in the vicinity of impediments, camera movement and light changes. Head-posture estimation is a flourishing exploration theme delivering regularly expanding exactness levels. The author reported a mistake rate of 24 degrees of genuine reconnaissance video. The researcher was highlighted the comparable precision and model anatomical limitations utilizing joint body and head-posture estimation [3,4,5]. In this manner we will search the specimen picture and afterward isolate the pixels of the intrigued range of district..

1.2 REGION SEPARATION

A standard pre-preparing step in numerous acknowledgment errands today is to segment the data image into an arrangement of super pixels: "perceptually significant nuclear locales". In a run of the mill vision framework these number in the hundreds. Now and again a coarser parcel is utilized, with just tens (or maybe only a modest bunch) of areas; in this administration the locales are no longer nuclear, yet the trust is that they remain "perceptually significant", that will be, that every district does not straddle limits between semantically particular districts, for example, limits of an article, or impeding limits [6]. Boundaries of an item or blocking. We will likely re-arrange this exchange off, and accomplish the same, or better, level mof execution as existing routines, [7,8] but with less areas. We seek after the agglomeration grouping methodology: beginning with a fine parcel into little districts, bit by bit combine them into bigger and bigger ones. Basic to this is a probabilistic model for grouping regions. We impart this essential soul to some previous work, prominently, however present various key innovations. Given fig 2(a), (b) [6] demonstrates how the locale partition is done on a specific picture.



Fig. (2) a) Sample image b) image with neighbor operation

Thus the bounded region has to be separated for finding the occlusion for getting the output of the image and analysing the feature extraction.

1.3. FEATURE EXTRACTION

The feature extraction is the robust and the key concept in image analysis. To contrast similitude between images, we require to perform this experiment by keeping an eye on of numbers. In such manner feature extraction is an approach to demonstrate visual information of an image in scale of numbers so they can be closely resembling.

1.3.1. COLOR EXTRACTION

Different color spaces, for example, RGB, HSV, YCbCr, CIE LAB, CIE LUV, and so forth are utilized as a part of CBIR framework. On the other hand, no color space is prevailing in all applications. In this paper, the HSV shading space is utilized due to its perceptual consistency. That is, the three segments H (Hue), S (Saturation) and V (Value) comparable to the shading qualities intently connected with the way that the human eye sees the shading. The methodology here is to concentrate two histograms, one for Hue and one for Saturation. Since V is specifically identified with brilliance level, it is not considered in our shading estimation approach. The Hue circle is quantized into 360 degrees, and Saturation into 100 levels. In this way, their relating histograms have 360 and 100 bins [9].

1.4 AMBIENT OCCLUSION

To evaluate and measure the occlusion of a voxel, we turn to ambient occlusion, used widely to approximate the ambient attenuation of a point given the surrounding scene. This can be calculated as equation 1.

$$AO(x) = \frac{1}{\pi} \int_{\Omega} (1 - V(x, \omega)) (\omega \cdot n) d\omega \quad \text{Equation(1)}$$

Where x is the area of a point or voxel, n speaks to the typical of the surface through this point and $V(x, \omega)$ is the perceivability of x along a heading ω . The headings ω are taken to cover the side of the equator Ω characterized by the typical of the point. Whenever $AO(x) = 0$, the fact of the matter is included[10].

In the parking area observation case, figure 3. altered cameras with no covering perspective study a parking area with numerous stopped vehicles. It is frequently the case that the cameras are mounted at a shallow sorrow edge to take into account wide scope. This tends to prompt successive impediments of people on foot from vehicles in every camera view. What's more, as the separation from the camera builds, impediments turn out to be more serious, while the clear size of people on foot gets littler [11].



Fig. 3. This figure shows examples of people moving around relocatable occludes such as cars .

2. EXISTING SYSTEM

It relies on upon the development or movement of head pose and pedestrian. Framework depends on the instability estimations of forecasts. Created model uses versatile movement model. Operations are performed utilizing KALMAN filter approach.

3. PROPOSED WORK

In this research, we are going to present the part of the image in which impediment has been happening. This will help in distinguishing the match for the first image and the suspect. Till now numerous researcher carried out image processing approach for real time application. In this paper, we will discover the impediment on the encompassing image which will be the part of the video or it can be any static image. The calculations utilized are Kalman Filter which will give the fitting yield for the examination of the image bit. Further, we will be delineating the data identified with the territory of worry as Pixel Recognition, Region Separation, Image Feature Extraction, Image Occlusion and after that Distance Calculation. The figure 4(a) describes the low level system architecture and figure 4(b) shows the high level system architecture.

Image Occlusion	Angle(degree)	Distance(mm)
Image Processing		
JPG Files		
Java		

Fig.4(a) Low Level Architecture

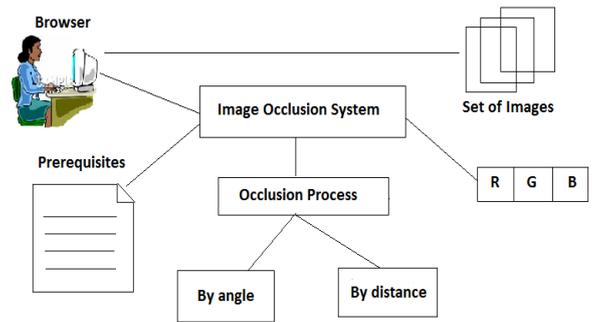


Fig.4(b) High Level Architecture

4. DESIRED IMPLICATIONS

In this task, we are performing image processing which incorporates four noteworthy steps that are feature extraction, region separation, finding images occlusion and calculating distance. In feature extraction we are considering any of the attributes (like shading) of the specimen on the premise of which we will perform the processing. We remove that quality and perform area detachment. In local detachment, we separate out the area which was removed in the past stride by utilizing appropriate calculations and different procedures. After this we will check if there is any occlusion or not and find out the occluded part of the image. Ultimately, we compute the separation moved by the article or individual in the image by looking at two images which are taken from the video. The desired output of our experiment is to give the separation or edge moved by the image (1pixel=1mm) by looking at two images (screenshots) of a video, check the impediment and figure out the blocked a portion of the article and additionally its size

5. CONCLUSION

This paper will assist us the understanding the image operations and comprehend different techniques performed on the image in motion. Pixel operations and region extraction are additionally the one of the best system utilized for selecting the investigation on operation on the motion image. Image occlusion is the principal source on which the venture is depended as the direction ways and the movements are computed and after that by performing experiments the observed result is produced. From this experiment the author recommended that the Kalman filter approach is a good choice for Image occlusion based motion image analysis..

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