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REVIEW PAPER ON FACE LIVENESS DETECTION USING EULER METHOD BASED ON DIFFUSION SPEED CALCULATION.

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Abstract: It is a common method to spoof face verification system by using photographs. Therefore security is essential factor. Spoofing make security system vulnerable. To address these types problem, several authors used number of methods .Here we examine the views of numerous authors for face apperception .Diffusion of image is done by using euler strategy. (LSP) is the local speed patterns, in which diffusion speed values are encoded and it is our component which effectively shows the dissimilarities between real and fake image. Testing is carried out by SVM.

Keywords: Spoof, Diffusion speed, local speed pattern (LSP), SVM.



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INTRODUCTION

Nowadays, photographs and videos are the ways for making the security system illiterate. Security is very essential in every sector..From decades usually thumb is used for the biometric purpose. Now face is also used for the same. Face recognition shown its relevance in lots of sectors since from few years. It is effective in many areas. Biometrics is the technologies designed to verify the identity of a person used in evidence system.

In[1] dissimilarities are observed in original i.e.. real and fake images. Addictive operator splitting method is used for diffusion. It increases the efficiency and accuracy. Rapidly diffused the images. Without using non linear diffusion efficiency not increased. In[2]for non linear diffusion a scheme is introduced which is stable for every time steps. Tan et al introduced a new method for spoofing detection. In that method a single image is used for diffusion.

In[4],for bad illumination condition liveness can be detected without user any type of extra devices. For the impressive output of liveness without any extra device, observed when the image is come from camera or smart phones rather than human face. Face liveness detection scheme concentrate on security of face realization system. Various effective liveness feature extraction schemes applied one by one on one dimensional and further on two dimension images Liveness detection will improves the results of many face realization systems. Liveness is the reality of the image which is depend on diffusion. Here image diffusion is performed .Euler method which is use for image diffusion work on color images also. Diffusion speed is used for calculating the difference between original and fake image. For the security purpose and mainly for biometric system this method is used. This paper focus the methods proposed earlier about the originality of the face in II. In part III proposed scheme is given and observation of various methods used in past years in IV. Going further conclusion and references are in V and VI respectively

II. Review of Literature

In past Literature review areas of research are considered as, to be explained the approaches used and the new ideas. It is away through which we can find new ideas, concept. Many literatures are given before on the same task; some reference papers have taken into consideration from which idea of the project is taken, the other reference will be discussed later. Image diffusion using euler method is used to detect the difference in live and fake face.

A. *ADDICTIVE OPERATOR SPLITTING SCHEME FOR NON LINEAR DIFFUSION*:- For non linear diffusion author presented a new method called Addictive operator splitting (AOS)scheme. This scheme is easy to implement. The number of pixels are linear and increases the efficiency. Many Applications are become more attractive due to this type of scheme.

B. *LTV MODEL*:- LTV is the logarithmic total variation model. This model is used for single image without any requirement of information of the image. This model applies on that image and leaves the very little facial structure. This structure may be the idea for face identification. LTV model is used in various illumination conditions. Modification of LTV is done. Various authors are used this LTV model for detection of real and fake images. Logarithm total variation techniques are also used for calculation purpose. For speed calculation it is used.

C. *EYE MOVEMENT*:-. In this method author identifies difference in the eye regions and finally determined the input face is original or not. Big shape variations are occurs due to continuous eye movements. In the input image first centre point of both the eyes are detected. For input image recognition the threshold are always greater than the result for the live faces. For the identification of eye regions filtering to the face image is done due to which a smoothed 3D curve is obtained. After that normalization of face region is done. After normalization, eye regions are determined according to the centre of eyes. Then hamming distance is applied to calculate the liveness score of each eye region. Finally the result is given as, for live faces average liveness score is greater than threshold.

D. *SCENIC CLUE BASED ANALYSIS*:- Author introduced scenic clues for identification of real and fake image. A new method is introduced by combining of three scenic clues. Face-background consistency analyzed that high consistency for fake face images and low consistency for real faces. This consistency is an efficient liveness clue. Non-rigid motion clue shows the movement. In image banding authors have used wavelet decomposition for detection. The authors have fused these three clues for efficient liveness detection.

III. Proposed Scheme

In proposed scheme four steps are involved:

1) NON LINEAR DIFFUSION Input image is diffused according to our focus called non linear.

2) PIXEL DIFFUSION SPEED FEATURE:- In this process pixel by pixel diffusion is performed.

3) LSP EXTRACTION:- It is a local speed pattern used to calculate the difference in live and fake face.

4) CLASSIFICATION:- This process is used matching approach to automatically classify the feature vectors. It clearly shown the by given figure:

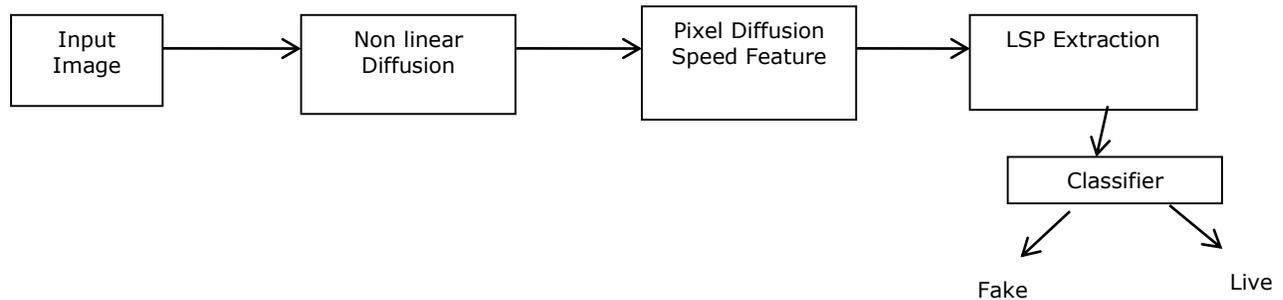


Fig. a Model for liveness detection.

IV. Comparative Analysis

There are different methods which are proposed for the face liveness detection. The different method are proposed so, that the liveness detection accuracy is improved. In [3], for biometric purpose a filter based representation technique for fingerprint verification is given. This technique has it's computationally good matching/indexing capability. If the normalized finger codes of all the enrolled fingerprints are stored as templates, then the identification involves a effectively bit comparison. Thus the identification time would be insensitive to the database size. But the drawback is that all the reference point cannot stored accurately in the noisy image and due to difference in the finger pressure this scheme cannot be able to tolerate large deformation in the ridge pattern. In[8],different approaches for liveness detection are given .Movement between the faces are differentiate by the motion analysis. In texture technique used printed image in front of camera for determination. It is easy to implement and no need of user collaboration but limitation is that it requires images with low texture information.

V. Conclusion

Image diffusion is used which produced a new technique for identification of original and fake image. Euler method is used for image diffusion which shows the dissimilarities in real and fake image. A very effective method for identification of difference in real and fake images is given. Different face realization techniques have been discussed here. Face realization has become one

of the important applications in the recent years as it will allow the unique identification of human face

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