IOSR Journal of Engineering (IOSRJEN) **www.iosrjen.org**
ISSN (e): 2250-3021, ISSN (p): 2278-8719
PP 07-09

Analysing Efficiency of Image by Improving Image Smoothness Using DCT and SIFT

[1]Ashwini Chakole, Member, IEEE, [2]Prof. Nilesh P. Bodane Member, IEEE
[#] *Department of Electronics Engineering, Rashtrasant Tukdoji Maharaj Nagpur University Nagpur, India*
[1]*ashwinichakole92@mail.com*
[#] *Department of Electronics Engineering, Rashtrasant Tukdoji Maharaj Nagpur University Nagpur, India*
[2]*nileshbodne@gmail.com*

Abstraction: *Whenever we consider any issue regarding issue while considering exchange of any information from one side to another, we always have to deal with images that too a high pixel density image and that image should be copy more forgery free. Forgery detection can be troublesome if it can or has connected some post handling operation like re-sizing, shifting, resolution, JPEG pressure etc.*
In this paper we will be going to represent a new method of copy-move attack detection using DCT and SIFT[e-sift] technique. using proposed system we will be able to detect the forge data mainly images and also estimate the parameter of the forgery. the recognition proceed by matching individual features to a database for performing verification.
Keywords: *e-sift, sift, dct, jpeg, pixel*

I. Introduction

The world is changing day by day and hence our way to store and control the information. Computerized picture are speediest method for data exchange because of their simplicity and speed of exchange. These are two method of image tampering can be classified as a) Active Method b) Passive Method.

The Active method requires certain information which is embedded inside an image and during the creation or before the image is being disseminated to the public. This method can be used to either detect the source of an image or any modification that has been done to the original image. One of the common method of active system is Watermarking

Passive method on the other hand does not require any transformation but to be inserted into digital image. This method works purely by analyzing binary information of digital image, without any need of external information. For image matching of recognition, SIFT features are first extracted from a set of reference image and stored in a database. A new image is matched by individually comparing each feature from the new image to this previous database and finding candidate matching based on it. This paper will discuss fast nearest neighbour algorithm that can perform this computation rapidly against large database.

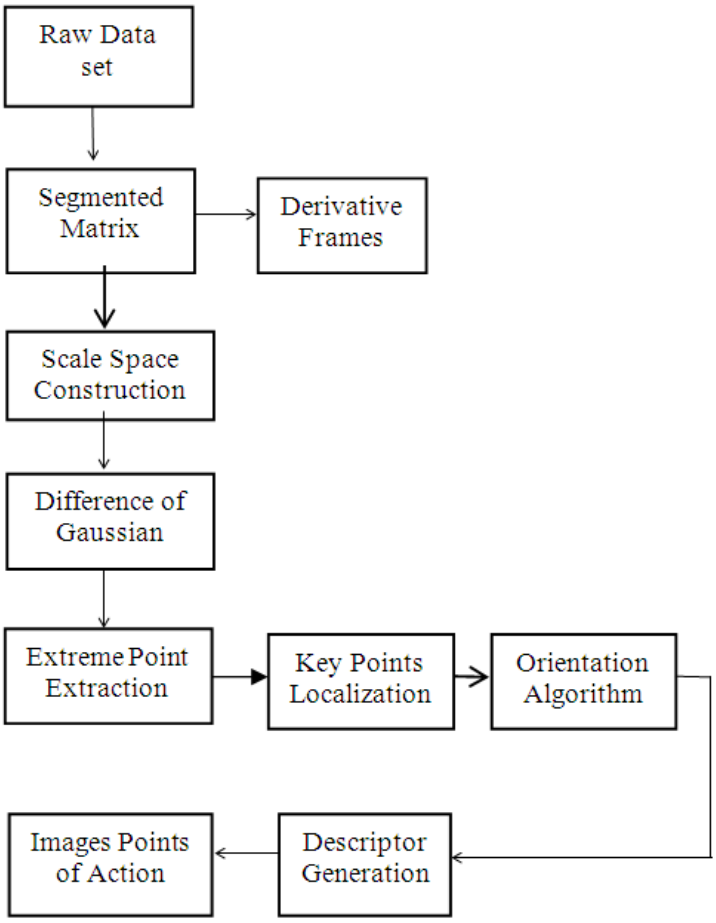
The level of details of faked image varies depending on different factor which has became an important issue as the quality of the faked images sometimes is so convincing that it is impossible to use visual method to detect traces of image forgery. In such prototype technique which are based on statistical method can be used to analyze these kind of images

The Challenges:-
A) Under the lossy compression.
B) Sometimes it is possible that the intruder may add the noise to an image to make the forgery detection difficult
C) Point of the region may be related before performing forgery.
D) The image which may be copied may get blurred out.
E) Copied regions texture may be changed. It may be made sometimes lighter or darker

***Our proposed System*:-**
The SIFT is Scale Invalid Feature Transform which is used to detect and describe local features in and image. To help the extraction of these features the SIFT algorithm has the following 4 stage filtering approach
1.Scale Space detection:- This method has the following detecting points of the concept which is based on the key points. These key points are taken according to the maxima/minima of thee difference of the Gaussian.

The Algorithm SIFT:-

As we are working in the SIFT algorithm that too in the DCT Domain. The DCT co-efficient reduces the images matrix with low loss of accuracy in image matching and retrieval The SIFT descriptor is based on image in terms of fields and frames.



This defection and description of local images features can help in object recognition. They are relatively easy to match against a large database of local features, however the high dimensionality can be issue and generally probabilistic algorithm.

Key Points Localization:- After that, SIFT algorithm discards low key points and filters out only that are located on the edges.
Considering the Orientation:- One or more orientation are assigned to each key points based on based on the value of descriptor.
Key point Descriptor:- This step has a descriptor for every key point that is highly distinctive and partially invarient to the variation.

Advantages of SIFT Algorithm:-
The key localization/scale/Rotation is very accurate, stable and rotation invariance
The geometric distortion indexing and matching has high efficiency and speed.
This method is having better error tolerance with fewer matches.
The Bayesian Probability analysis is more reliable analysis.

Algorithm to perform Hierarchical clustering:-
Step:- a] Suppose image is of NXN matrix so for N items we will have N clusters. Let the distance between the cluster equal to the distance between the items they contain.
Step:- b] Find the nearest pair of cluster and then merge them into a single cluster.
Step:- c] Compute distance between the new cluster and each cluster.
Step:- d] Repeat Step b and c until all items are clustered into a single cluster size N

II. Conclusion

In the proposed work we have implemented the enhanced [E-SIFT] algorithm to detect the forged images. Average time to process the input by the proposed system has to calculated in this work. Proposed system also shows good accuracy in work that can contain forged image with transformation .

In future, such system can be enhanced to minimize the processing time to detect the forgery in the images to few seconds or even microseconds.

In future, such system can be enhanced to minimize the processing time to detect the forgery in the images to few seconds or even microseconds.

References

[1]. Li Shanshan Research of features design and similarity measurement in computer vision[D].PhD thesis, University of Science and Technology of China, 2010.

[2]. Cheng Lei. Target Recognition Method Based on Structure of Local Feature[D], University of Science and Technology of China, 2009.

[3]. Mikolajczyk K, Schmid C.A Performance Evaluation of Local Description[J]. IEEE Trans on Pat Analysis and Machine Intelligence,2005,27(10):1615-1630.

[4]. Mikolajczyk K, Tuytelaars T, Schmid C, et al. A comparsion of affine region detectors[J]. International Journal of Computer Vision, 2005, 65(1):43-72.

[5]. Douze M, Jegou H, Schmid C. An image-based approach to video copy detection with spatio-temporal post-filtering[J].IEEE Transaction on Multimedia,2008,12(4):257-266.

[6]. Wang Jinde, Li Xiaoyan, Shou Lidan, Chen Gang. A SIFT Pruning Algorithm for Efficient Near-Duplicate Image Matching [J]. Journal of computer-aided design & computer graphics, 2010,22(6), 1042-1049.

[7]. Zheng Yongbin, Huang Xinsheng, Feng Songjiang. An Image Matching Algorithm Based on Combination of SIFT and the Rotation Invariant LBP [J]. Journal of computer-aided design & computer graphics, 2010, 22(2): 286-291.

[8]. Wan Yuan, Wu Chuaansheng, Approach of MPEG-4 video based on DCTQ module. Computer Engineering and Application,2007, 43(12): 42-44.

[9]. Zeng Hui, Mu Zhichun, Wang Xiu-qing. A Robust Method for Local Image Feature Region Description [J]. Acta automatica Sinica, 2011,37(6): 658-644. Proceedings of the 2nd International Symposium on Computer, Communication, Control and Automation(ISCCCA-13) Published by Atlantis Press, Paris, France.

[10]. Redi Judith, Taktak Wiem Dugelay Jean-Luc, "Digital image forensics: a booklet for beginners," Multimedia Tools and Applications, vol. 51, no. 1, pp. 133-162, 2011.

[11]. J.Fridrich, D. Soukal, and J.Lukas. "Detection of Copy-Move Forgery in digital Images" Proceedings of Digital Forensic Research Workshop, 2003.

[12]. A.C. Popescu and H. Farid, "Exposing digital forgeries by detecting duplicating image regions," Technical Report TR2004-515, Dartmouth College, 2004.

[13]. W.Lue, J.Huang and G. Qiu, "Robust Detection of Region Duplication Forgery in Digital Image," in Proceedings of the 18th International Conference on Pattern Recognition, vol. 4,pp.- 746-749,2006.

[14]. G. Li, Q. Wu, D. Tu, and S. J. Sun, "A sorted neighbourhood approach for detecting duplicated region in image forgeries based on DWT and SVD," in Proceedings of IEEE ICME, Beijing, China, 2007.

[15]. D. G. Lowe, "Distinctive image features from scale -invariant key points," International Journal of Computer Vision, vol. 2, no. 60, pp.91-110, 2004.

[16]. I. Amerini, L. Ballan, R. Caldelli, A. D. Bimbo, and G. Serra, "A SIFT-based Forensic Method for Copy-Move Attack Detection and Transformation Recovery," IEEE Transaction on Information Forensics and Security, vol. 6, no. 3, pp. 1099-1110, 2011.

[17]. V. Christlein, C. Riess, J. Jordan, C. Riess, and E. Angelopoulou, "An Evaluation of Popular Copy-Move Forgery Detection Approaches,". IEEE Transactions on Information Forensics and Security, vol. 7, pp. 1841-1854, 2012.