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Image Forgery Detection For Smart Healthcare

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ABSTRACT

Image tampering is a digital art which need understanding of image properties and good visual creativity.one tampers images for various reasons either to enjoy fun of digital work creating incredible photos or to produce false evidence this process introduce a new unsupervised distribution-free tamper detection method in medical image images based on scale-invariant feature transform (SIFT) key points and region information. Adaptively, this algorithm segments the host image into non - overlapping and irregular blocks, the feature points are extracted from each block, and the block features are matched with one another to locate the labelled feature points. It has become necessary to check the authenticity and the integrity of the image by using modern and digital techniques, which contribute to analysis and understanding of the images' content, and then make sure of their integrity. There are many types of image forgery, the most important and popular type is called copy move forgery, which uses the same image in the process of forgery.

Keywords : SIFT, human inspection, DCT transformation, SLIC, SLICO

I. INTRODUCTION

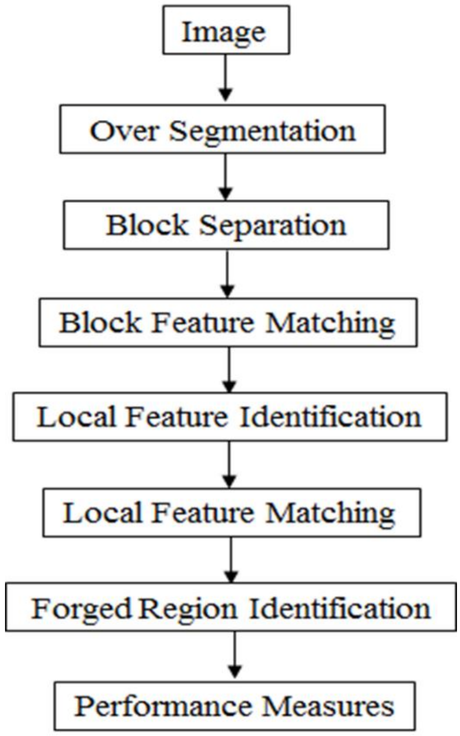
The number of doctored photographs circulated each day has far exceeded the amount that human inspection can handle, therefore bringing automated content integrity verification into picture. Besides fast verification processes, automated algorithms also complement human inspection for manipulations that cannot be perceptibly detected by the human eye. Several problems can be defined at different levels: image level binary decision, tampering operation identification, and suspicious area localization and manipulation explanation. We discuss these topics in the following subsections. Note the list is by no means an exhaustive one. There are many new ways in which images may be tampered with. However, the top-down framework of problem formulation involving multiple levels of decision is general. We will present a comprehensive study utilizing novel ideas arising from different levels. At the image level, a critical question frequently asked is whether an image is authentic (hence trustworthy) or doctored (and cannot be trusted). A lot of times such global decisions suffice and no extra detailed information is necessary. Once the authenticity of a candidate image is determined, information such as the type of tampering, quality of tampering or specific tampered areas may not be important.

II. METHODS AND MATERIAL

In this process, we propose a framework to improve the performance of forgery localization via integrating tampering possibility maps. In the framework, we first select and improve two existing forensic approaches, i.e., statistical feature based detector and copy-move forgery detector, and then adjust their results to obtain tampering possibility maps. After investigating the properties of possibility maps and comparing various fusion schemes, we finally propose a simple yet very effective strategy to integrate the tampering possibility maps to obtain the final localization results. The process of forgery detection in images is employed based on the feature point based and block based matching process. The block size of the images were calculated based on the input image's DCT transformation. The images were over segmented with the help of Simple Linear Iterative Clustering (SLIC) algorithm. The SLIC algorithm segments the images based on the block size determined using DCT transformation. SLIC uses the same compactness parameter (chosen by user) for all super pixels in the image. If the image is smooth in certain regions but highly textured in others, SLIC produces smooth regular-sized super pixels in the smooth regions and highly irregular super pixels in the textured regions. So, it become tricky choosing the right parameter for each image. SLICO adaptively chooses the compactness parameter for each super pixel differently. This generates regular shaped super pixels in both textured and non-textured regions alike. The improvement comes with hardly any compromise on the computational efficiency - SLICO continues to be as fast as SLIC. K regularly spaced cluster centers were sampled and they were moved to seed locations corresponding to the lowest gradient position in a 3 × 3 neighborhood. This is done to avoid placing them at an edge and to reduce the chances of choosing a noisy pixel. Each pixel in the image is associated with the nearest cluster center whose search area overlaps this pixel. After all the pixels are associated with the nearest cluster center, a new center is computed as the average labxy vector of all the pixels belonging to the cluster. The derivative of the images is calculated. The calculated values gives the changes

DIAGRAMS:

Flow diagram



In the color and the gray scale values of the image which indicates the informations in the image. values are selected from the given set of values based on the gradient calculation and max value and max intensity value calculation. Finally the calculated values are padded with the image pixels and their corresponding ids were obtained and then the values are saved as the main orientation points. The LFP were matched inorder to identify the forges refions in the images. The performance of the process is measured with the help of performance metrics like Precision, Recall value estimated.

III. MODULE DESCRIPTION

Input Image

An image is a rectangular array of values (pixels). Each pixel represents the measurement of some property of a scene measured over a finite area. but we usually measure either the average brightness (one value) or the bright nesses of the image filtered through red, green and blue filters (three values). The values are normally represented by an eight bit integer, giving a range of 256 levels of brightness. A line is either a dark line or a light line The basic MATLAB data structure is the *array*, an ordered set of real or complex elements. An array is naturally suited to the representation of *images*, real-valued, ordered sets of color or intensity data.

Preprocessing:

Image Resize:

When scaling a raster graphics image, a new image with a higher or lower number of pixels must be generated. Image resizing is necessary when you need to increase or decrease the total number of pixels, whereas remapping can occur when you are correcting for lens distortion or rotating an image. Image resizing is necessary when you need to increase or decrease the total number of pixels, whereas remapping can occur when you are correcting for lens distortion or rotating an image.

Feature Extraction

Block feature extraction process is employed for the calculation of the similarity between the features extracted from the block regions based on Scale Invariant Feature Transform (SIFT) process. The process identifies the key points from the images. The key points extracted from the blocks were matches based on distance calculated. The derivative of the images is calculated. The calculated values gives the changes in the color and the gray scale values of the image which indicates the informations in the image. The detection and description of local image features can help in object recognition. The SIFT features are local and based on the appearance of the object at particular interest points, and are invariant to image scale and rotation.

SLIC Segmentation

The images were over segmented with the help of Simple Linear Iterative Clustering (SLIC) algorithm. The SLIC algorithm segments the images based on the block size determined using DCT transformation.

1: Initialize cluster centers Ck = [lk, ak, bk, xk, yk]T by sampling pixels at regular grid steps S.

2: Perturb cluster centers in an n × n neighborhood, to the lowest gradient position.

3: repeat

4: for each cluster center Ck do

5: Assign the best matching pixels from a 2S × 2S square neighborhood around

the cluster center according to the distance measure.

6: end for

7: Compute new cluster centers and residual error E {L1 distance between previous

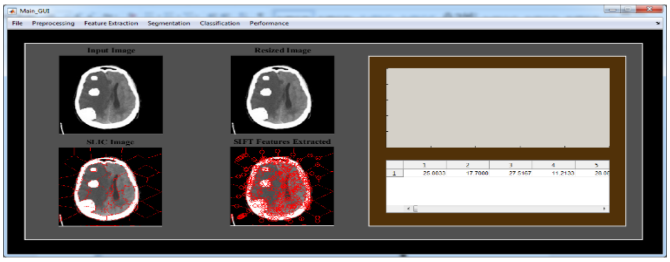
centers and recomputed centers}

8: until E ≤ threshold

9: Enforce connectivity

IV. RESULTS AND DISCUSSION

Here we detect the forensic in the photography. For the detection we extract SIFT features from the images. . The process can be further improved with the help of the application of different algorithms for the segmentation of the images. In the proposed approach the number of blocks in the images were calculated based on the input image



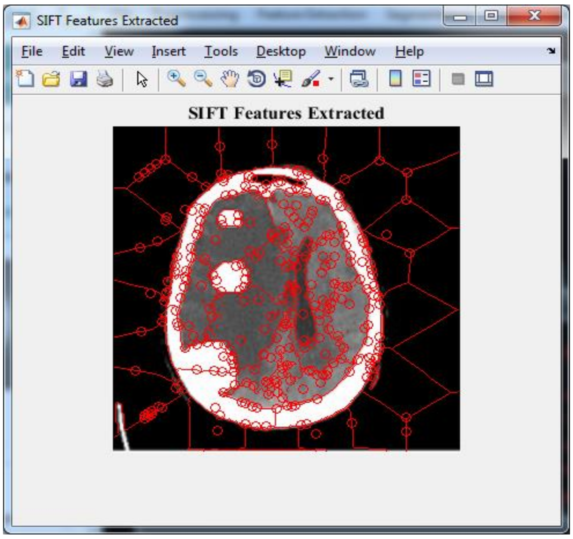


Fig 1:SIFT feature Extracted

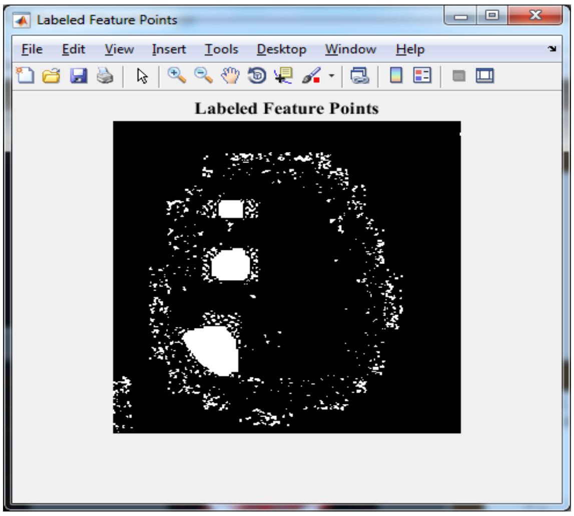


FIG 2:Labelled features points

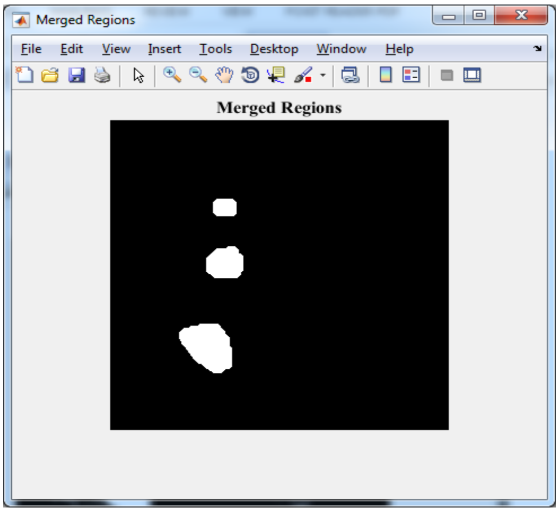


FIG 3:Merged Regions

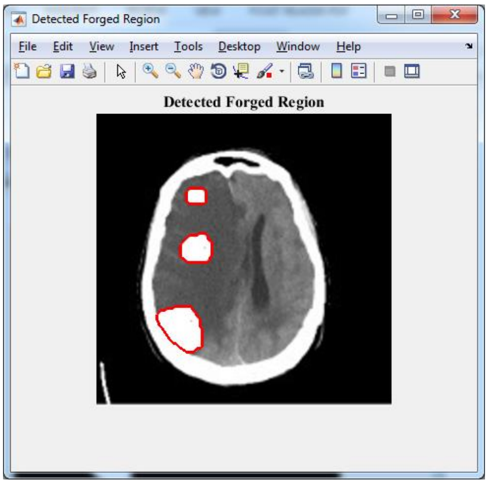


FIG 4:Detected forged region

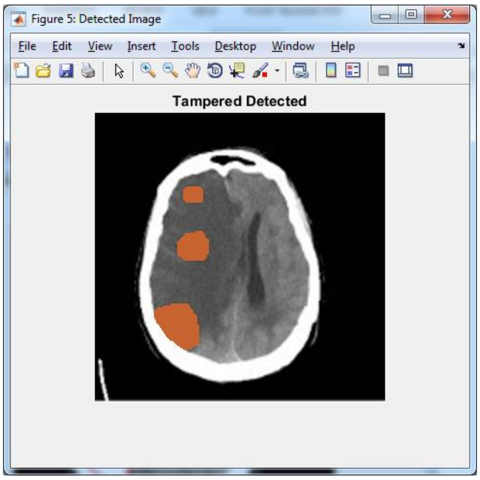
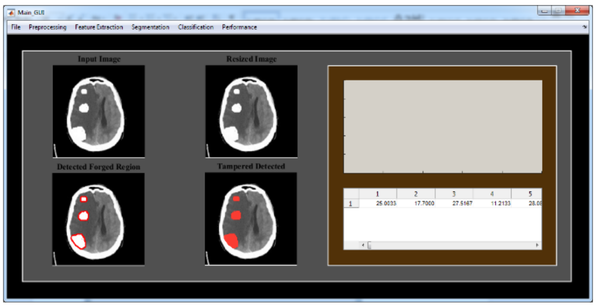
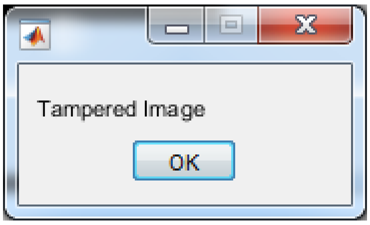


FIG 5:Tempered Detected





V. CONCLUSION

The input images were over segmented based on the SLIC algorithm. Our method provides the better results than the existing system. we detect the forensic in the photography. For the detection we extract SIFT features from the images

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