International Journal of Master of Engineering Research and Technology, 2394-6172-(O)
Volume-6, Issue-6, June 2019

Image Forensic Analysis based on Transform Function

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ABSTRACT

In current decade, digital images are in use in a wide range of applications and for multiple purposes. They also play an important role in the storage and transfer of visual information, especially the secret ones. With this widespread usage of digital images, in addition to the increasing number of tools and software of digital images editing, it has become easy to manipulate and change the actual information of the image. In this detection technique used texture feature of image. For the texture extraction of image used wavelet transform function, these functions are most promising texture analysis feature. For the selection of feature generation of pattern used clustering technique. Clustering technique is unsupervised learning technique process by iteration. The proposed methods are evaluated on several original and forged images. According to our experimental results the proposed methods are quite attractive. The forgery is done with just copy-move, copy-move with rotation, with scaling, and reflection.

Keywords, Image, Forgery, Forgery Detection, DWT, SK, KR

I. INTRODUCTION

Nowadays advanced image assumes a striking part in speaking to and exchanging data. With the improvement of the expert and minimal effort computerized media altering instruments and progressed software's, controlling an advanced image has turned out to be substantially simpler and it is conceivable to acquire an excellent altered computerized image with no obvious pieces of information. In this way, deciding the realness of images is profoundly imperative. Two sorts of well-known computerized image altering strategies incorporate duplicate move fabrication and joining falsification, that the principle centre of this paper, is duplicate move phony[1-3]. The objective of this kind of imitation is typically covering an undesirable piece of the image, by replicating another part from that image and sticking it onto the undesirable locale and it should be possible effortlessly by utilizing the instruments like cloning[4, 7]. In the rest part of this paper, wavelet transforms function in section II, Proposed algorithm and model in section III, comparative result analysis in section IV and finally Conclusion in section V.

II. WAVELET TRANSFORMS FUNCTION

Wavelet transform is widely used in machine vision as an image processing technique for object detection and classification. Wavelets have been applied in the past to analyse image and are used in many applications in remote sensing, such as removing speckle noise from radar images merging high spectral resolution images with high spatial resolution images and texture analysis and classification. Wavelet transform has been used to classify EEG signal with integration of expert model[5, 6]. The concept of wavelet is closely related to multi-scale and multi resolution application and it has been used into image fusion technique. Implementation of Discreate Wavelet Transform (DWT) as an image processing technique produces the transformation values called wavelet coefficient. The challenge here is how the coefficient can be interpreted to represent object for classification or detection. A common approach of feature extraction from wavelet transformation is the computation of mother of wavelet. Expert model has been used as a feature extraction tool to analyse sub-band frequency of wavelet transform. The sub-band frequencies were used as an input to the expert model network[8-12].

III. PROPOSED ALGORITHM & MODEL

In this section describe the process of proposed model. The proposed model contains with wavelet transform function and clustering technique. The clustering technique generates the local pattern of block.

Step 1. Initially put the original image and forged image for the processing of feature extraction

Step 2. After processing of image discrete wavelet transform function are applied for the texture feature extraction

Step 3. After the texture feature extraction apply glow-worm technique for local pattern generation

Step 4. The pattern matching block selects the all local pattern of cluster algorithm of both original and forged image

Step 5. Measure the distance between original image and forged image.

Step 7. If the value of d is 0 images are block is original else image block area is forged.

PROPOSED MODEL

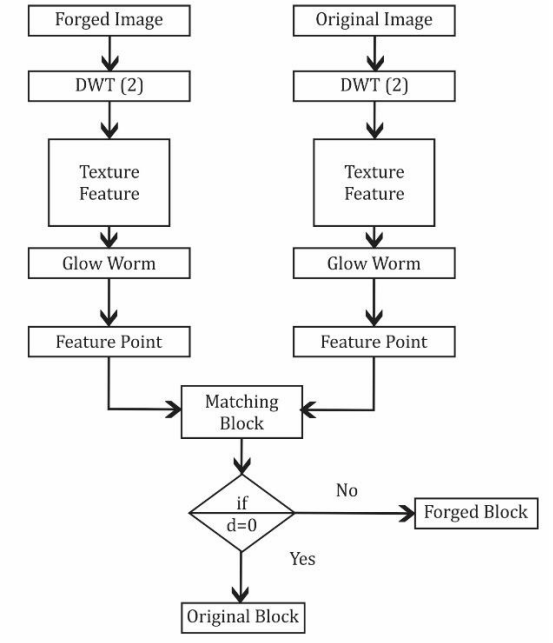

Figure 1: Proposed model for image forged image.

SIMULATION PROCESS

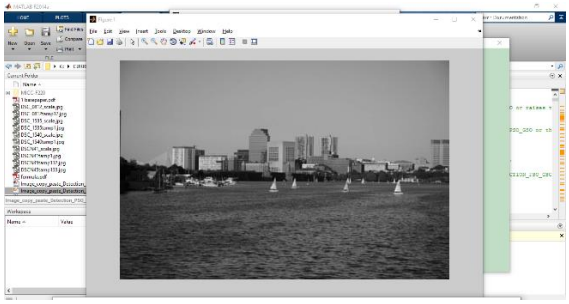

Figure 2: window show that after the loaded image view of sea when we click on CMPSO, in our improving image copy-move forgery detection with glow worm optimization algorithm.

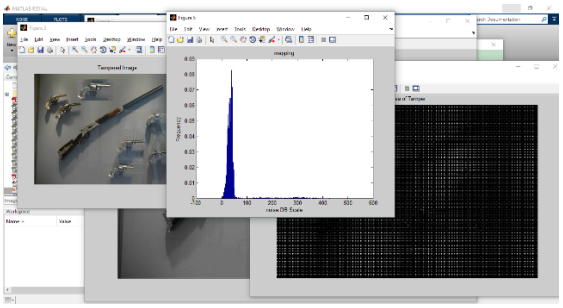

Figure 3: window show that after the loaded second image view of gun when in our improving image copy-move forgery detection with glow worm optimization algorithm using CMGSO.

IV. COMPARATIVE RESULT ANALYSIS

Load image of *GUN*		
	CMPSO Technique	CMGSO Technique
Shift Key (SK)	90.124	96.6392
Key Result (KR)	1.9545	0.28455

Table 1: comparative performance for SK and KR parameter using CMPSO and CMGSO method with Gun image.

Load image of *SEA*		
	CMPSO Technique	CMGSO Technique
Shift Key (SK)	90.4706	96.9857
Key Result (KR)	1.803	0.13303

Table 2: comparative performance for SK and KR parameter using CMPSO and CMGSO method with Sea image.

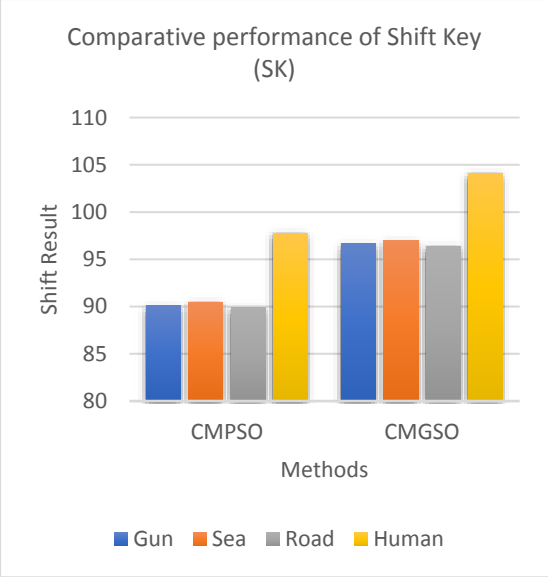

Figure 3: show that the comparative performance between CMPSO and CMGSO method for Shift Result (SR) parameter. Here we can see that CMGSO have the better performance compare to the CMPSO method.

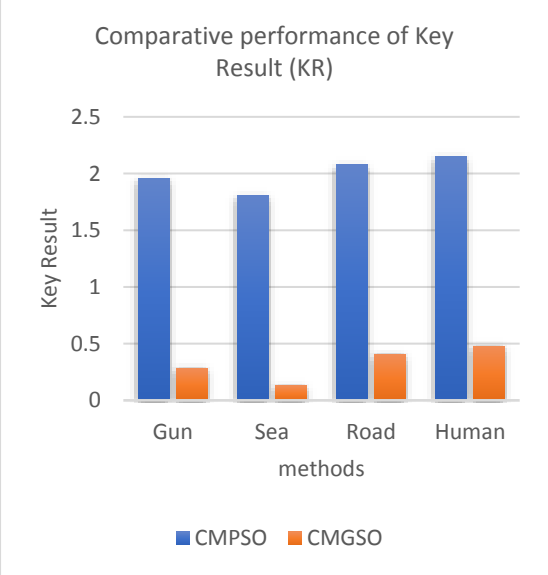

Figure 4: show that the comparative performance between CMPSO and CMGSO method for Key Result (KR) parameter. Here we can see that CMGSO have less implementation result value that show that the better performance compares to the CMPSO method.

V. CONCLUSION

In this work proposed an image forgery detection technique based on glow-worm optimization technique. The proposed image forgery used wavelet transform function for the extraction of feature of original and forged image. The extracted feature passes through glow-worm optimization technique for the generation of local pattern. The local pattern passes though matching block and measure distance of two similar and dissimilar blocks. The proposed image forged detection technique is very efficient in compression of local pattern and transform function-based technique.

The proposed methods are evaluated on many original and forged images. According to our experimental results the proposed methods are quite attractive. The forgery is done with just copy-move, copy-move with rotation, with scaling, and reflection. In this process, an image database that consists of original and forged images is also developed. The proposed method achieves 100% accuracy in just copy-move forgery (without any change in the size or characteristics of the object) forgery without post-processing and 97.43%, 66.58%, and 99.12% accuracies in copy-move forgery with rotation, scaling, and reflection, respectively.

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