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ScienceDirect

Procedia Computer Science 115 (2017) 501–508

Procedia Computer Science

www.elsevier.com/locate/procedia

7th International Conference on Advances in Computing & Communications, ICACC-2017, 22-24 August 2017, Cochin, India

# Image Inconsistency Detection Using Local Binary Pattern (LBP)

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**Abstract**

Day to day Digital Image has widely increased popularity in Human life. People edit image with the help of editing tools or software for malicious intent. This work is to identify inconsistency in an image. The paper contains different steps suchas preprocessing, feature extraction, and matching process, which is highlights effective use of local binary pattern method for feature extraction mechanism. Euclidean distance is exploited for matching measures. The result obtained exhibits that LBP with 2x2 block size gives the best result with accuracy reach to $\simeq$ 98.58 % for automatic detection of inconsistencies in an image.


Peer-review under responsibility of the scientific committee of the 7th International Conference on Advances in Computing & Communications.

*Keywords:*Inconsistency ;LBP; FeatureExtraction; Matching;

## 1. Introduction

Recent days Digital Image has decreased its pureness due to inception of massive operational flexibility incorporated in modification of digital images through image editing software's such as sophisticated photo editing tools, this manipulation of image hasbecome more common. Manipulation of digital image in image analysis deals with many questions [1] like:

- Is the image is true, digitally enhance or computer render.
- If the image is true, actual details of an image.

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Peer-review under responsibility of the scientific committee of the 7th International Conference on Advances in Computing & Communications
10.1016/j.procs.2017.09.097

- If the image is digitally raised, what was the manipulated and how was manipulation executed.
- If the image is computer render, how was the image produce.

In order to address aforesaid questions researchers have put their efforts towards design of different mechanism towards examination of image inconsistencies and these method were broadly classified under three classes as,

- Observation: Sometimes inconsistent image can be identified through direct observation i.e. specular highlights and shadows, colour tones anti-aliasing, reflections, scale.
- Basic image enhancement: Through an algorithms i.e. scaling, sharpening, re colouring, blurring, attributes with image can be made discrete.
- Advance Image analysis : This involves PCA , wavelet and , LBP, and light direction (i.e. gradient)

Copy-Move image inconsistency is evil and normally usedbylarge population of users for various purposes, it may be for authorized or unauthorized. In case such operations using Copy-Move operation the forgery in image datatakes place where some part of image information is copied and pasted to another place in same image and human eyes could not identify these changes incorporated in image and this mechanism itself makes this task challenging and critical.Farid[2] proposed somemethods about detect image forgery. There are two types method for image forgery detection, first is active [3], [4], [5]and second is passive or blind [5], [6], [7], [8]. In active forgery detection method there is need of prior information of image. Where as in case of passive forgery detection method, there is no need for prior information. Figure 1 shows methods involved image forgery detection and its types.

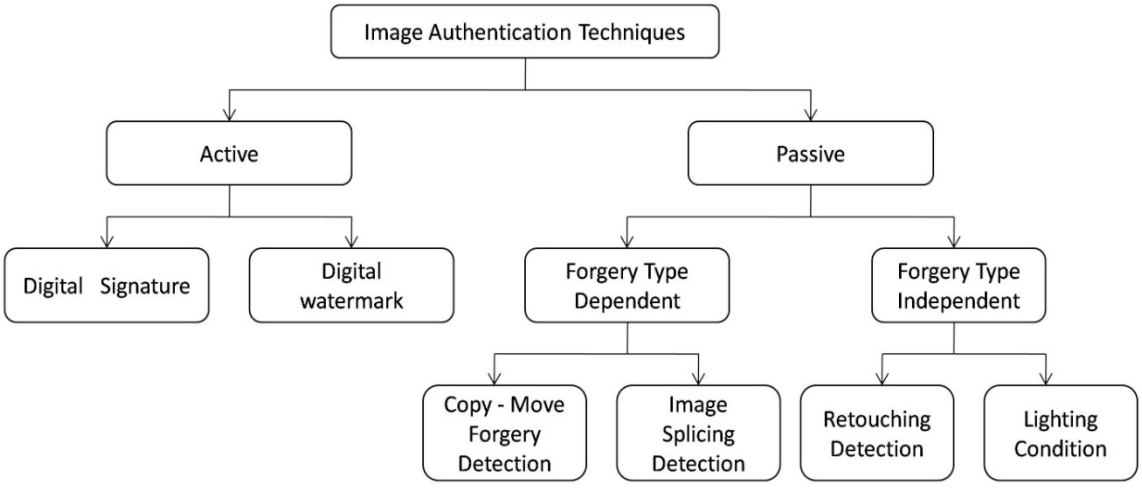


Fig.1 Types of Image forgery detection.

Active image forgery method is categorized in the two type [9] i.e. *digital signatures* and *digital watermarking*. Where as in case of passive method it iscategorised in two types i.e.*forgery dependent* and *forgery independent*. The proposed detection method discussed in this research paper is categorizedunder forgery dependent type i.e. Copy-Move forgery detection [10]. Forgery type independent further categories again into two typesi.e. *retouchingdetection and*lighting*conditions*.This paper is organised into five sections, where section 1 provided introduction of the problem beingintegratedSection 2 gives the related work of Image forgery detection; Section 3 introduces the methodology of the system; Section 4 gives experimental results. Finally, Section 5 gives the conclusions and future work.