# Robust Hashing Method for Image Authentication using Zernik Moments & Local Features

Alfin Thomas
Student(M.Tech)
Department of Electronics and Communication
T. John Institute of Technology,
Bangalore, Karnataka, India

Mrs.Anuja Eliz.Sebastian
Assistant Professor
Department of Electronics and communication
T .John Institute of Technology,
Bangalore ,Karnataka, India

Manu Augustine
Project Manager
Arvin Technologies
Kalamassery, Kerala, India

***Abstract*—In this paper, Image hashing method is used for detecting image forgeries including removal, insertion and replacement of objects, abnormal color modification and for locating the forged area. Both global and local features used. Global features are based on Zernike moments, which include the luminance and chrominance characteristics. Local features include the position and texture information of the image.Here we using local features such as haralick features and MOD-LBP features. And I devide the image into nonoverlapping blocks and features are extracted from these blocks. This will prove the technique is a image authentication technique (Which doesnot detect content preserving modifications such as image resizing, image compression etc..Since these operations do not change the image contents).But at the same time it should be capable of detecting tempering. Performance analysis of this, technique,towhich amount of content preserving modification, the proposing technique is robust. Hashes produced with the proposing method are robust against common image operation operations. The images are processed using MATLAB and the design is implementing on Raspberry pi.**

## I. INTRODUCTION

People can easily modify an actual image into different ways using any of the editing softwares.This will corrupt the actual one. In order to identify an original image from corrupted one, we using Image hashing scheme. In image hashing method we analyze the image into two categories,first one is discuss with Zernike moments and second one is local features.zernik moments means its luminance characteristics and chrominance characteristics. Local features include the texture and position information of the image. Hash is produced using these two properties. And the hash of the test image is compared with the reference image, and can analyze the defferences.Hash is produced with the secret keys. And the thing is that different images have different hash values. Collision between different hash images is zero. Image hashing methods are different types, Which are using image histogram[1] and two step framework[2] and etc….Here we using hash with global and local features. And the produced image hash is a short one with good performance,i.e capable of detecting and locating content forgery. Compared with other methods, this method has better overall performance in major specifications especially from content preserving processing. Haralick features and MOD-LBP features are mainly concentrated here. Haralick features were calculated using the kharalick () function. MOD-LBP features are also used.

## II .IMAGE FORGERY DETECTION

First we consider the hash producing method; image is preprocessing and then devides the image on the basis of global and local features. After extracting the global and local features combine those features and produce a hash. Global features based on Zernike moments. Local features including the salient regions of the image.Here we more considering the Haralick and MOD-LBP features.

### *A. Haralick Feature*

Haralick feature were calculated using the kharalick () function. The basis for these features is the grey level co-occurenece matrix. This matrix is square with dimension N.It is the number of grey levels in the image.Element [i, j] of the matrix is generated by counting the number of times a pixel with value i is adjacent to a pixel with value j and then deviding the entire matrix by the total number of such comparisons made.

### *B. MOD-LBP Feature*

- MOD-LBP(Modified Local Binary Pattern)

It can resist intra image- illumination variation. The LBP (Local Binary Pattern) operator is a grey scale texture primitive. The computational simplicity and discriminative power makes LBP popular. And it has more applications such as visual inspection, image retrieval, remote sensing, biometrics,, motion analysis…….MOD-LBP is the modified local binary pattern. And it is different from grey scale texture primitive. It is a modified form and more advanced one than LBP feature.

*PROPOSED SYSTEM*

Robust hashing method for image authentication using Zernike moments and local features is used for detecting image forgeries particularly considering the above features. The system is designed with MATLAB and implement on Raspberry pi.Raspberry pi is a credit card based computer that plugs into the TV and a keyboard. It also plays high – definition video. The original Raspberry pi is based on the Broadcom BCM2835 system on a chip, which includes an ARM1176JZF-S 700 MHz processor, videocore IV GPU and 256 megabytes of RAM. The Soc used in the first generation Raspberry pi is somewhat equivalent to the chip used in older smartphones

## SCOPE OF PROJECT

- It is robust against content preserving image processing. And is applicable to image authentication.
- It is applicable to finding copy move forgery and image splicing.

## APPLICATION

In September 11 2001 World trade centre was attacked by the terrorists. They send a message, in that message they hide a secret .Actually it was an image of a cartoon of two children, decorating a Christmas tree.Using the secret keys we can find the secret codes. This is the application of the paper. We can find useful applications with this project.

## REFERENCES

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