FAKE IMAGE DOCUMENT DETECTION VIA A DEEP DISCRIMINATE MODEL

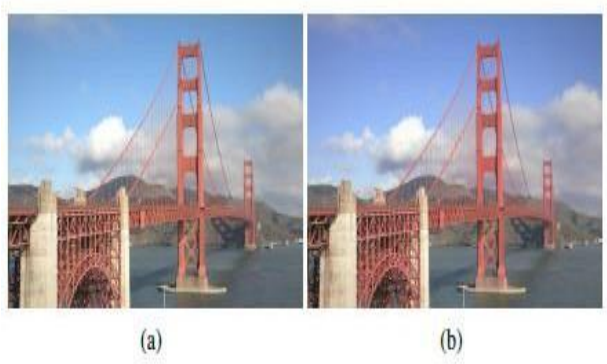
M.Anil[1], K.Shiva[2], Y.Tulasi[3], G. Jayasri[4], B. Prudhvi Teja[5], E.K.M. Sai[6]

[1]*(Assistant Professor, Dept. of Computer Science and Engineering, Sanketika Vidya Parishad Engineering College, Visakhapatnam, India)*

[2,3,4,5,6]*(B.Tech(IV/IV) students, Dept. of Computer Science & Engineering Sanketika Vidya Parishad College of Engineering, Visakhapatnam, Andhra Pradesh, India)*

Abstract – Image recoloring is a technique that can transfer image color or theme and result in an Imperceptible change in human eyes. The proposed network takes the original image and two derived input based on illumination consistency and inter-channel correlation of the original input into consideration and output the probability that it is recolored.

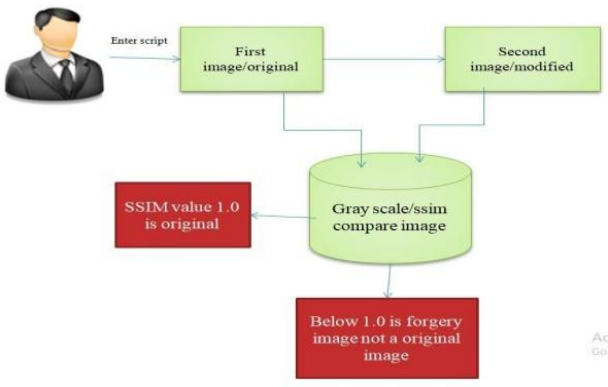
***Keyword's*: Image recoloring, Illumination, inter-channel correlaton.**



INTRODUCTION

NOWADAYS, millions of photographs are produced by various devices and distributed by newspapers, televisions, and websites every day. Many legal, governmental and scientific organizations use digital images as evidence of specific events to make critical decisions. Unfortunately, with the development of low-cost and high-resolution digital cameras and sophisticated photo editing softwares, it is simple to perform image manipulations and the detection of forged images is much difficult through human vision. This challenges the reliability of digital images/photographs as real-world events. Accordingly, image forensic techniques for forged images detection are necessary. Image recoloring, i.e., color transferring, is one of the most common image operations in photo editing. Usually, satisfying color transfer algorithms apply the color characteristic of a target image to a source image and generate a recolored result that human cannot distinguish. One such example is shown in Figure 1. Figure 1(a) shows an authentic image and Figure 1(b) is a recolored image generated by the This work is supported by National Key Research and Development recoloring method. The recolored image in Figure 1(b) has three different regions with (a): the sky region, the sea area, and the bridge. However, both the light blue sky in Figure 1(a) and the deep blue sky in (b) are equally authentic in human vision system. Although decent recolored images may leave no visual clues as shown in Figure 1(b), they may alter the underlying image consistencies. Although numerous methods have been proposed for image forensics, such as splicing, copy move and enhancement. To the best of our knowledge, there are no forensics methods specially designed for color transferring even if altering the color of an image is one ofthe most common tasks in image processing. Therefore, it is necessary to design approaches for recoloring detection. In this work, we take advantages of two consistencies as well as the original input image to distinguish whether an image is recolored. Previous forged image detection approaches focus on statistical relationships of hand-crafted appearance features between the original and tampered images. For example, Stamm. show that pixel value mappings leaves behind artifacts and detect enhancement by observing the intrinsic fingerprints in the pixel value histogram. However, these state-of-the-art methods are limited by the hand-designed priors or heuristic cues which may be less effective for some images. For instance, the method proposed in is not likely to detect tampered images if the pixel value histogram after tampering keeps smooth.

1.1 System Architecture



EXISTINGSYSTEM

Forgery detection methods intend to verify the authenticity of images and can be broadly classified into two classes :

1. Active authentication
2. Passive authentication

In active authentication techniques, data hiding techniques are employed where some codes are embedded into the images during generation. These codes are used for further verifying to authenticate the originality of image. Watermarking embeds watermarks into images at the time of image acquisition while digital signatures embed some secondary information extracted from images at the acquisition end into the images.

DISADVANTAGES OF EXISTING SYSTEM:

- We are the first attempt to distinguish recolored images from natural images.
- We analyze the inter-channel correlation and illumination consistency for natural images which may not hold after the color transfer operation.
- Based on these two properties, we propose a deep discriminative model for recoloring detection.

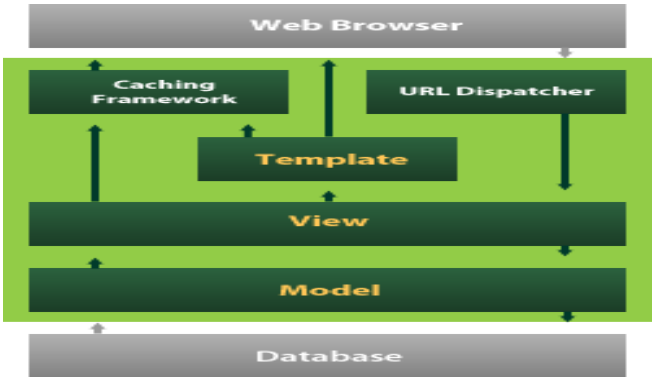
PROPOSEDSYSTEM

1. Existing forgery detection methods adopt some description techniques to combine the information attained by evidence estimators.
2. The original image in RGB channels as the input since it contains information about the picture such as color and structural features.
3. After extracting forgery-relevant features, we use a feature fusion network to refine these features and output the probability of authenticity.

ADVANTAGES OF PROPOSED SYSTEM:

1. We generate a large-scale and high-quality training dataset for training the proposed network.

2. They are able to describe the intrinsic properties of forgery formation and help distinguishing the authenticity of an image.



Methodology

Visual information description:

Visual descriptors give statistics about an image. A good descriptor permits to discriminate between similar and dissimilar images. Note that the notion of similarity highly depends on the application. For instance, similarity means “visually consistent images” in the framework of image retrieval while it signifies “visually nearly identical” in duplicate detection.

Duplicate detection:

Duplicate detection is a task that aims at detecting the duplicates of an original image. Consequently, it is first necessary to define what a duplicate is. In short, a duplicate is a transformed version of an original artwork that keeps a similar visual value. In other words, ‘being a duplicate’ is a pairwise equivalence relationship that links the original to any of its variations through a transformation operation, for example, compression, brightness changes or cropping. By extension, if an image A is a duplicate of another image B and yet another image C is duplicate of image B, then image C is in turn a duplicate of image A.

Visual attention similarity measure:

Human visual attention is enhanced through a process of competing interactions among neurons representing all of the stimuli present in the visual field. The competition results in the selection of a few points of attention and the suppression of irrelevant material. In this context of visual attention, we argue that humans are able to spot anomalies in a single image or similarity between two images through a competitive comparison mechanism, where dissimilar and similar regions are identified and scored by means of a new similarity measure.

Grayscale in image processing:

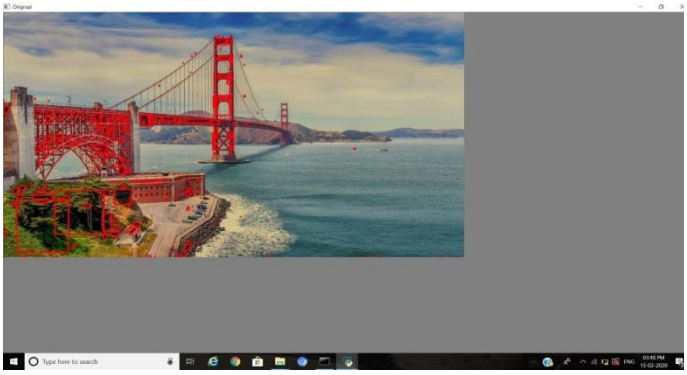
Grayscale is the collection or the range of monochromic (gray) shades, ranging from pure white on the lightest end to pure black on the opposite end. Grayscale only contains luminance (brightness)

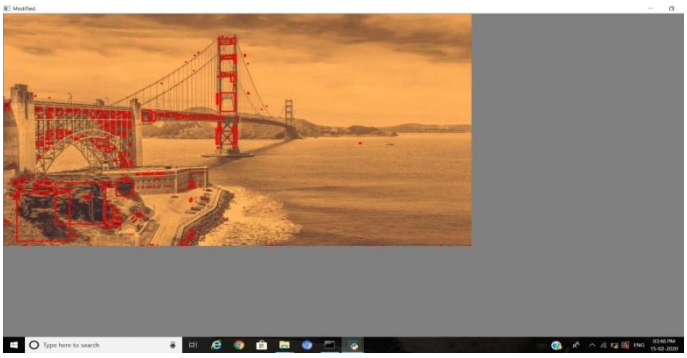
information and no color information; that is why maximum luminance is white and zero luminance is black; everything in between is a shade of gray. That is why grayscale images contain only shades of gray and nocolor.

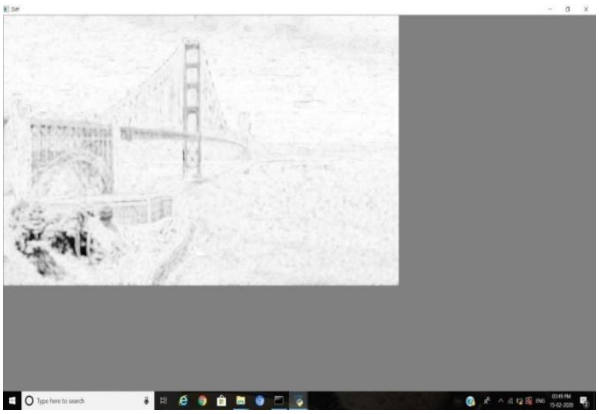
Implementation

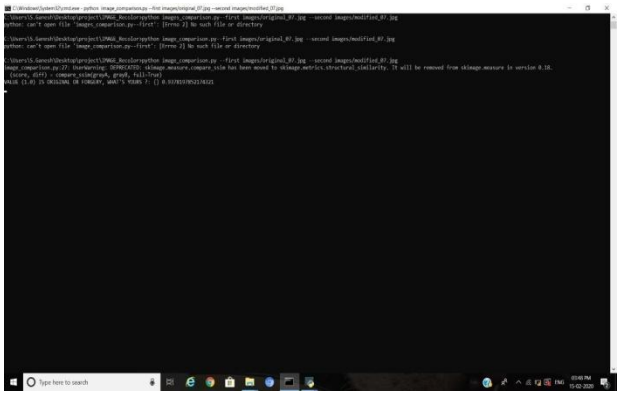
Analysis and Design are very important in the whole development cycle process. Any fault in the design phase could be very expensive to solve in the software development process. In this phase, the logical system of the product is developed. the design must be decoded into a machine-readable form. If the design of software product is done in a detailed manner, code generation can be achieved without much complication. For generation of code, Programming tools like Compilers, Interpreters, and Debuggers are used. For coding purpose different high level programming languages like C, C++, Pascal and Java are used.

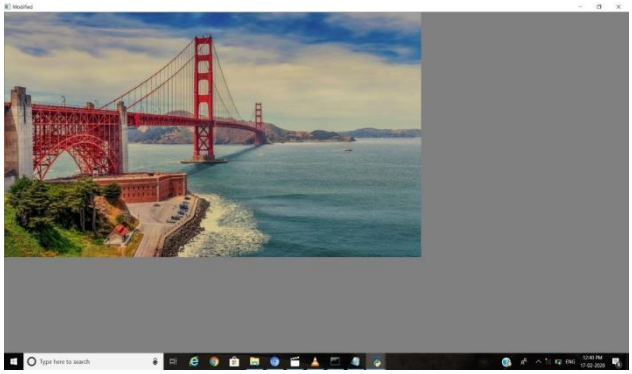
Final Result











CONCLUSION

Both the inter-channel correlation and the illumination consistency are employed to help the feature extraction. We elaborate the design principle of our Recent and systematically validate the rationality by running a number of experiments. Two recolored datasets with different sources are created and the high performance of our Recent demonstrates the effectiveness of the model. We hope our simple yet effective Recenet will serve as a solid baseline and help future research in recolored images detection. Our future work will focus on designing a more effective network architecture and searching for some high-level cues for better distinguishing.

Future scope

1. Now we are using only jpg images with fixed height and width.
2. In future we can also use JPEG,PNG,TIF and RAW formats and there is no fixed size of an image .
3. We can ensure that the detection of the recolored at a certain pixel.

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BIOGRAPHIES

M . Anil
Currently working as assistant professor from Department of Computer Science and Engineering at Sanketika Vidhya Parishad Engineering College

K. Shiva
Pursuing B. Tech from Department of Computer Science and Engineering at Sanketika Vidya Parishad Engineering College.

Y. Tusali
Pursuing B. Tech from Department of Computer Science and Engineering at Sanketika Vidya Parishad Engineering College.

G. Jayasri
Pursuing B. Tech from Department of Computer Science and Engineering at Sanketika Vidya Parishad Engineering College.

B.Prudhvi Teja
Pursuing B. Tech from Department of Computer Science and Engineering at Sanketika Vidya Parishad Engineering College.

E.K.M. Sai
Pursuing B. Tech from Department of Computer Science and Engineering at Sanketika Vidya Parishad Engineering College.