Journal of Advanced Research in Technology and Management Sciences
Volume: 04 Issue: 02 ISSN: 2582-3078 April-May 2022
Available online at: http://www.jartms.org

Digital Image Forgery Detection Using Convolutional Neural Networks

Dr.G.SRINIVAS RAO, Professor Dept of CSE,KHIT,Guntur
P.SAI LIKHITHA, Kallam Haranadhareddy Institute of Technology,Guntur
K.KOTESWAR RAO, Kallam Haranadhareddy Institute of Technology,Guntur
J.SURESH GOPI, Kallam Haranadhareddy Institute of Technology,Guntur
B.MANASA, Kallam Haranadhareddy Institute of Technology,Guntur

ABSTRACT

Detection of image forgery is an important part of digital forensics and has attracted a lot of attention in the past few years. Previous research has examined residual pattern noise, wavelet transform and statistics, image pixel value histogram and other features of images to authenticate the primordial nature. With the development of neural network technologies, some effort has recently applied convolutional neural networks to detecting image forgery to achieve high-level image representation. This paper proposes to build a convolutional neural network different from the related work in which we try to understand extracted features from each convolutional layer and detect different types of image tampering through automatic feature learning. The proposed network involves five convolutional layers, two full-connected layers and a Soft max classifier. Our experiment has utilized CASIA v1.0, a public image set that contains authentic images and splicing images, and its further reformed versions containing retouching images and re-compressing images as the training data. Experimental results can clearly demonstrate the effectiveness and adaptability of the proposed network.

Introduction: Digital Image detection technique are known and best classified as an active or also known as passive approaches. In active approaches the digital images are required to undergo a pre processing process such as watermark embedding or signature generation while the making of the image, that limits their application in flow. Active approach is

best can be known as the authentication of the image which is not noticed. Watermark-based and signature-based methods are not the uninvolved innovation does not might want any computerized mark created or watermark inserted previously. Uninvolved systems for picture legal sciences work inside the nonattendance of any watermark or mark. These methods take a shot at the conviction that albeit computerized falsifications could leave no visual intimations that demonstrate intruding, they'll adjust the basic measurements of an image.

Literature Survey: A method that may observe forged of JPEG image and find the cast half by examined the double division result among the DCT coefficients was planned. Their technique observes district replication by separating the image into overlying blocks then look for the similar district within the image. This paper aims to prove that the utilization of DCT to observe forgery is higher for jpeg pictures than exploitation a predefined technique PCA. The results are totally different on execution time since the take a look at images are different in size. the littlest size of image is quicker than larger one. The accuracy of the detection results conjointly different. they're terribly happy with the result as a result of they got improvement in terms of detection rate and detection time by exploitation the planned technique. They conjointly meet their objective that is evidenced that exploitation DCT is healthier than using PCA to observe extremely rough-textured image. Another technique planned for copy-move forgery detection exploitation DCT. They used DCT formula for forgery detection. there's an approach that may observe tempered JPEG pictures and more find the tempered elements, by observant the double division result hidden among the DCT coefficients. The JPEG method may be a wide used kind of lossy image compression that solely employed by the DCT. The JPEG technique is employed for each Black & white and color picture. Their technique detects duplicated forgery regions by dividing the image into 8*8 over-lapping blocks

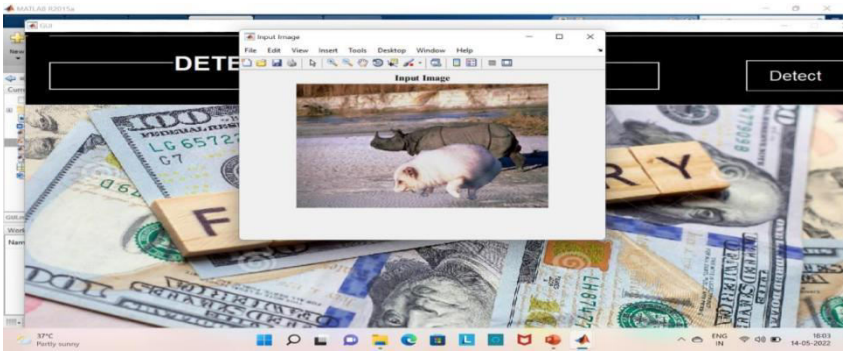
then lookfor the corresponding region within the image. They conjointly show the possible of thismethod on capable fakes and valuate the strength also.

Proposed: In proposed method, digital image forgery is detected by four tasks namely Imageacquisition, image pre processing, model building, image segmentation. Firstly, we build amodel by using CNN by taking all the non-spliced images and train those. After that as stated above, the acquired image is prepossessed. The prepossessed image is segmented by converting the image into a grayscale image. Later, we perform canny edge detection through which we get boundary of all the objects in the image. After this step, we compare with the real images with the model which is trained with real image i.e., the non-spliced images. This helps in detecting whether the image is spliced or non-spliced.

RESULTS

Output Screen

Selecting an image for detection of forgery



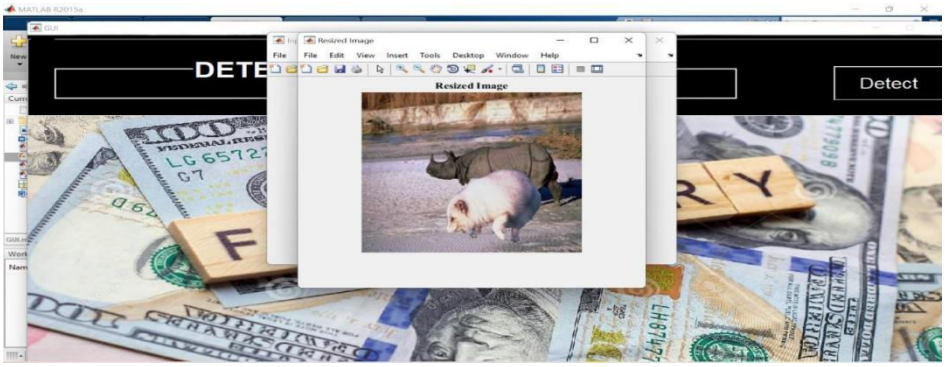


Fig : Resized image of Selected input image

CONCLUSIONS

In proposed method, digital image forgery is detected by four tasks namely Image acquisition, image prepossessing, model building, image segmentation. Firstly, we build a model by using CNN by taking all the non-spliced images and train those. After that as stated above, the acquired image is prepossessed. The prepossessed image is segmented by converting the image into a grayscale image. Later, we perform canny edge detection through which we get boundary of all the objects in the image. After this step, we compare with the real images with the model which is trained with real image i.e., the non-spliced images. Thishelps in detecting whether the image is spliced or non-spliced.

REFERENCES

1. *Somayeh Sadeghi, Hamid A. Jalab, and Sajjad Dadkhah(2012), "Efficient Copy-Move Forgery Detection for Digital Images", World Academy of Sciences, Engineering and Technology, 2012.*
2. *Ashima Gupta, Nisheeth Saxena, S.K Vasistha(2013), "Detecting Copy Move Forgery using DCT", International Journal of Scientific and Research Publications, Volume 3, Issue5, May 2013. ISSN 2250-3153.*
3. *Lakhwinder, Sumit, Anaahat(2014), "DWT and SIFT based Passive Copy-Move Forgery Detection". International Journal of Computer Applications (0975 – 8887). Volume 95– No.23, June 2014.*
4. *Amanpreet Kaur, Richa Sharma(2013), "Copy-Move Forgery Detection using DCT and SIFT". International Journal of Computer Applications (0975 – 8887). Volume 70– No.7, May 2013.*
5. *Deepika Sharma, Pawanesh Abrol(2013), "Digital Image Tampering – A Threat to Security Management". International Journal of Advanced Research in Computer.*
6. *Diaa M. Uliyan, Hamid A. Jalab, and Ainuddin W. Abdul Wahab(2015), "Copy-Move Forgery Detection using Hessian and Center Symmetric Local Binary Pattern", InternationalConference on Open System (ICOS), August 2015.*
7. *Dong Pi Tian(2013), "A Review on Image Feature Extraction and Representation Techniques", International Journal of Multimedia and Ubiquitous Engineering. Vol. 8, No. 4, July, 2013.*
8. *Jaseela S, Mrs. Nishandha S. G(2016), "Survey on Copy Move Forgery Detection Techniques", International Journal of Computer Science Trends and Technology (IJCST) – Volume 4 Issue 1, Jan - Feb 2016.*
9. *Kaur & Kaur (2015), "A Brief Survey of Different Techniques for Detecting Copy-Move Forgery". International Journal of Computer Science and Information Technology & Security (IJCSITS). Volume 6, No. 2,Mar April 2016.*
10. *Kaur & Kaur (2015), "A Review of Copy-Move Forgery Detection Techniques". International Journal of Advanced Research in Computer Science and Software Engineering.Volume 5, Issue 4, 2015.*
11. *Lakhwinder, Sumit, Anaahat(2014), "DWT and SIFT based Passive Copy-Move Forgery Detection". International Journal of Computer Applications (0975 – 8887). Volume95–No.23, June 2014.*
12. *Mohammad Farukh Hashmi, Vijay Anand, Avinas G. Keskara(2014), "Copy-move Image Forgery Detection Using an Efficient and Robust Method Combining Un-decimated Wavelet Transform and Scale Invariant Feature Transform Published by Elsevier B. V.*
13. *Pradyumna Deshpande, Prashasti Kanikar(2012), "Pixel Based Digital Image Forgery Detection Techniques", International Journal of Engineering Research and Applications (IJERA) , Vol. 2, Issue 3, May-Jun 2012, pp. 539-543.*
14. *P. Sabeena Burvin, and J.Monica Esther(2014), "Analysis of Digital Image Splicing Detection", IOSR Journal of Computer Engineering (IOSR-JCE), Vol. 16, Issue 2, Mar-Apr2014, pp. 10-13.*
15. *Shrishail Math, R.C. Tripathi(2010), "Digital Forgeries: Problem and Challenges", International Journal of Computer Applications, Vol. 5, No. 12, August 2010.*
16. *Sri Raghu Malireddi(2015),"Tampering Detection", 25 November 2015.*