Local Prediction Based Reversible Watermarking Using LSB Image Steganography and Data Hiding

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Abstract— A new method was introduced for least significant bit (LSB) image steganography in the spatial domain providing that capacity of one bit per pixel. Compared to recently proposed image steganography techniques, the new method called one third LSB embedding reduces the probability of change per pixel to one-third without sacrificing the embedding capacity. This improvement results in better imperceptibility and higher robustness against well-known as LSB detectors. Bits of the message is carried using a function of three adjacent cover pixels. DATA HIDING is a technique for embedding information into covers such as image, audio, and video files, which can be used for media notation, copyright protection, integrity authentication, covert communication, etc.

Keywords—LSB, Reversible Data Hiding

Introduction

Reversible data hiding in multi files is the application developed to embed any kind of data (file) in multi files file. It is a concern with embedding information in innocuous cover media in secure and robust manner. This system makes the files more secure by using the concepts of steganography. The motivation of reversible data embedding is distortion-free data embedding from the application point of view, reversible data embedding can be used as an information carrier. Since the difference between the embedded data and original data is almost imperceptible from human eyes, reversible data embedding could be thought as a convert communication channel.

By embedding the message authentication code, reversible data embedding provides true self authentication scheme, without the use of metadata. In this paper, we present high-capacity, high visual quality, reversible data-embedding

method for the multi files.A common approach of high capacity reversible data embedding is to select an embedding area (for example, the least significant bits of some pixels) in an multi files, and embed both the payload and the original values in this area (needed for exact recovery of the original multi files) into such area. As the amount of the information needed to embedded (payload and original values in embedding area) is larger than that of the embedding area.

Existing Work

Many Researchers worked ona novel reversible image data hiding scheme over encrypted domain [1].Itprovides higher embedding capacity and is able to perfectly reconstruct the original image as well as embedded message.Extensive experimental results are provided to validate superior performance of our scheme. To overcome this,lossless, reversible, and combined data hiding schemes for cipher text images encrypted by public-key cryptosystems with probabilistic and homomorphic properties was introduced [2].In the lossless scheme, the ciphertext pixels are replaced with the new values to embed additional data into the several least significant bit planes of ciphertext pixels by multilayer wet paper coding.

Next,novel separable and error-free reversible data hiding in an encrypted image based on two-layer pixel errors was introduced [3].Many experiments are carried out, and the results demonstrate that the proposed scheme reaches a high payload and outperforms some reversible data hiding schemes in the encrypted image.The success of the previous methods in this area has shown that a superior performance can be achieved by exploiting the redundancy within the image [4].

Specifically, because the pixels in the local structures (like patches or regions) have a strong similarity, they can be heavily compressed, thus resulting in a large hiding room.Extensive experiments demonstrate that the proposed method significantly outperforms the state-of-the-art methods in terms of the embedding rate and the image quality.

A new method, of recompressing a JPEG crypto-compressed image [5]. A Cryptocompression method which allows recompression without any information about the encryption key.This method is efficient to recompress a JPEG crypto

compressed image in terms of ratio compression. Moreover, since the encryption is fully reversible, the decryption of the recompressed image produces an image that has a similar visual quality compared to the original compressed image.

Proposed System

Any number of file can be compressed to one format.Here we use least significant bit for compression. The Image quality be same as before the compression.Here we compress Document, Pdf, PowerPoint presentation, video, and Text Document as one single Image with one key.Novel codes can significantly reduce the embedding distortion.To retrieve from the existing problem, invisible watermarking technique is used.Reversible Data hiding methods embed messages into the cover media to generate the marked media by only modifying least significant part of cover and, thus, ensure perceptual transparency.In proposed scheme, Using LSB-steganalytic methods, the hidden data can be embedded and it will be change into image format.

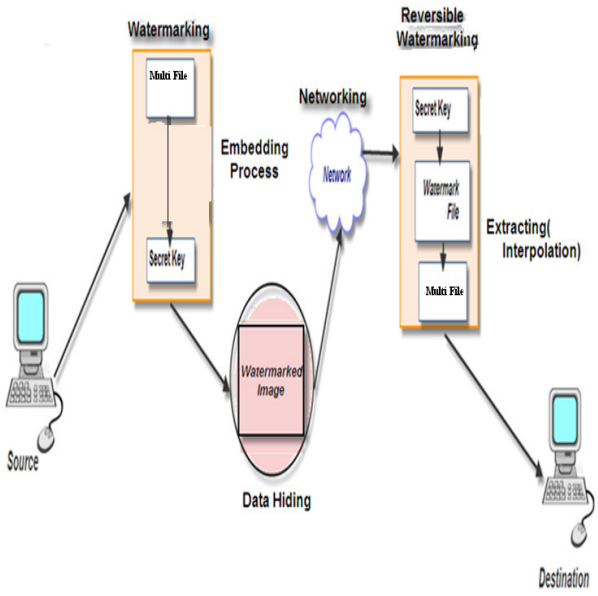

Fig.System Architecture

This Module have the Username, User id, Password conform password, Age, Contact no and Address fields. If anyone wants to become a member, he/she must have to register the details in the new user for this module.The information given by the user is stored in the database.User Login module provides the authentication of the user. It checks whether the user is the correct person to access resources by checking username and password (entered by the user) by comparing it with the information stored in the database. If the user is correct person to access the resource,then a message box showing "valid user" is displayed.

The user can proceed further. If he/she is not a valid user, then the message box shows invalid user.A reversible watermarking scheme using an interpolation technique, which can embed a large amount of covert data into cover media (such as image) with imperceptible modification. Reversible scheme provides a higher capacity and achieves better quality for watermarked data's.An efficient reversible watermarking where the difference histogram between sub sampled data's was modified to embed messages.

A reversible watermarking scheme based on additive interpolation-error expansion, which features a very low distortion and a relatively large capacity. The Multi file is selected then a multi files file is chosen as a cover. The Multi file is watermarked into the Image format and gives a Invisible Watermarking containing embedded data.Watermarking is a kind of data hiding technology. Its basic idea is to embed covert information into a digital signal, like digital audio, image, or multi files, to trace ownership or protect privacy. Among different kinds of digital watermarking schemes, reversible watermarking has become a research hotspot.The cover file containing embedded data is converted into image format (icon) i.e. multi files signal is converted into image signal using steganalysis method.A feasible interpolation algorithm to obtain interpolation values and interpolation-errors. Interpolation is the process of producing high-resolution image from its low-resolution counterpart. It has a applications in medical imaging, remote sensing, and digital photographs. We adopt a concrete interpolation algorithm, simplified method, to explain theinterpolationerror.

However, the proposed reversible watermarking scheme does not rely on the specific interpolation algorithm. To infer and utilize the correlation between the missing pixels and the neighboring pixels.The image file with interpolation error and noise is given as input using the interpolation algorithm the interpolation values are obtained and the output will be the error free image.Client-server computing or networking is a distributed application architecture that partitions tasks between service providers (servers) and service requesters, called clients.A server machine is a high-performance host which shares its resources with clients.

A client also shares any of its resources.Clients initiate communication sessions with servers

which listen to incoming requests.It finds the IP address of the receiver and sends the image file to the receiver. The receiver on receiving the file a new folder is created with the image file. The receiver gives the secret key; the original cover file and the text file are extracted and recovered without distortion.

Conclusion

Protection of data using reversible data hiding in multi files file is presented. In this project the database of existing system and the improvement over the proposed system is clearly defined.Reversible data hiding scheme in multi files file with low computation complexity is proposed which consists of data embedded and data extraction and cover file recovery phases. The original multi files is uncompressed.

Although the data hider does not know the original content he can embedded additional data into the multi files file by modifying a part of multi files. With the multi files file containing embedded data the receiver may first retrieve it using the secret key. The extracted data is similar to the original content.According to the secret key with aid spatial correlation in natural multi files the embedded data can be correctly extract while the original multi files can be perfectly recovered.Although someone can obtain a image format and detect the presence of hidden data using LSB steganalysis methods, if he does not know the secret key, it is still impossible to extract the additional data and recover the original image.

Reference

[1] JiantaoZhou, "Secure Reversible Image Data Hiding,"IEEE Trans.Circuits Syst. Multi files Technol., vol. 13, no. 8, pp. 890–896, Mar. 2016.

[2]XinpengZhang , Jing Long, Zichi Wang, Hang Cheng"Lossless and Reversible Data Hiding in Encrypted Images,"IEEE Trans. Circuits Syst. Multi files Technol., vol. 16, no. 3, pp. 354–362, Sept. 2016.

[3] ChunqiangYu ,Xianquan Zhang, Zhenjun Tan, XiaojunXie,"Separable and Error-Free Reversible Data Hiding in Encrypted Image,"IEEE Trans. Image Process., vol. 14, no. 2, pp. 253–266, Nov. 2016.

[4] Cao, X., Du, L., Wei, X., Meng, D., &Guo, X. "High Capacity Reversible Data Hiding in Encrypted Images," IEEE Trans. Inf. Forensics Secur., vol. 5, no. 1, pp. 187–193, 2016.

[5]Itier, V., &Puech, W, "Recompress a JPEG crypto-compressed image.

Signal Process," vol. 90, pp. 2911–2922, 2017.