Reversible Data Hiding In Encrypted Images By Reserving Room Before Encryption

A project report submitted in partial fulfillment of the requirements for the degree of Bachelor of Engineering in Information Technology

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CERTIFICATE

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This project report entitled **Reversible Data hiding In Encrypted images by reserving room before encryption** by **Sonia Bhandi, Amritdas Vaishnav, Kamesh Phegede** is approved for the degree of Bachelor of Engineering in Information Technology.

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Abstract

Reversible data hiding (RDH) in images is a technique, by which the original cover can be lossless recovered after the embedded message is extracted. This important technique is widely used in medical imagery, military imagery and law forensics, where no distortion of the original cover is allowed. Recently, more and more attention is paid to reversible data hiding (RDH) in encrypted images, since it maintains the excellent property that the original cover can be lossless recovered after embedded data is extracted while protecting the image content’s confidentiality. All previous methods embed data by reversibly vacating room from the encrypted images, which may be subject to some errors on data extraction and/or image restoration.

I

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Chapter 1 Introduction

* 1. Existing System

Steganography is a technique used to hide a message inside an image. Reversible steganography aims at recovering cover image without distortions while extracting secret messages at the receiver side. The two main existing problems in steganography are, how to obtain high embedding capacity without compromising on the cover image quality, and confidentiality of embedded messages. In this paper, we present a new technique of reversible steganography using the IMNP algorithm with DES preprocessing of embedded messages. IMNP algorithm allows to maintain good image quality and increases embedding capacity. DES preprocessing provides an extra layer of security to message. The experimental results show that the proposed technique outperforms existing techniques of Steganography in terms of embedding capacity and image quality. It further provides good security to messages. By M.Murali Krishna, Nirmal Roberts.

Reversible data hiding by reserving room becomes more prominent, since the original cover is restored without any loss after the hidden data is extracted.

Encryption is performed to provide the confidentiality for the image content. In this project,space for embedding data is reserved with pairwise prediction error expansion(PEE) and histogram shift before encryption has been performed, so that data hider can reversibly embed data into an encrypted image easily. Image redundancy is better exploited in prediction error expansion which leads to superior performance. But in the current PEE based method, correlation within prediction error is not better exploited. Hence to better exploit the correlation among prediction errors, two prediction errors are jointly considered. Then the embedding is based on the prediction error pair and its 2D prediction-error histogram, which leads to improved performance. Secret data extraction and image restoration in this method.By this method, higher PSNR is achieved than any other method in reversible data hiding.\_by S. Ariavazhang,c. Karthika.

In the past two decades, reversible data hiding (RDH), also referred to as lossless or invertible data hiding, has gradually become a very active research area in the field of data hiding. This has been verified by more and more papers on increasingly wide- spread subjects in the field of RDH research that have been published these days. In this paper, the various RDH algorithms and researches have been classified into the following six categories: 1) RDH into image spatial domain; 2) RDH into image compressed domain (e.g., JPEG); 3) RDH suitable for image semi-fragile authentication; 4) RDH with image contrast enhancement; 5) RDH into encrypted images, which is expected to have wide application in the cloud computation; and 6) RDH into video and into audio. For each of these six categories, the history of technical developments, the current state of the arts, and the possible future research are presented and discussed. It is expected that the RDH technology and its applications in the real word will continue to move ahead.\_by Yun-Qing shi,

XiaoLong Li

Reversible data hiding in encrypted images (RDHEI) is an effective technique to embed data in the encrypted domain. An original image is encrypted with a secret key and during or after its transmission, it is possible to embed additional information in the encrypted image, without knowing the encryption key or the original content of the image. During the decoding process, the secret message can be extracted and the original image can be reconstructed. In the last few years, RDHEI has started to draw research interest. Indeed, with the development of cloud computing, data privacy has become a real issue. However, none of the existing methods allow us to hide a large amount of information in a reversible manner. In this paper, we propose a new reversible method based on MSB (most significant bit) prediction with a very high capacity. We present two approaches, these are: high capacity reversible data hiding approach with correction of prediction errors and high capacity reversible data hiding approach with embedded prediction errors. With this method, regardless of the approach used, our results are better than those obtained with current state of the art methods, both in terms of reconstructed image quality and embedding capacity. By Pauline Puteaux,William puech

## Problem Definition

## To develop a GUI based Desktop application for encryption and decryption in an image,with the cryptography and steganography techniques and using RSA algorithm without changing or disturbing the quality of the picture or image.

1.3 Literature Review

Chapter 2

Proposed System

Chapter 3

Implementation Methods

Chapter 4 Development Tools

Hardware Requirement Software Requirement:

Chapter 5

Result and Discussion

Chapter 6

Plan of Work

Chapter 7

Conclusion

Chapter 8

Publications

Chapter 9

Bibliography

Conference Paper in IEEE format

Certificates

Acknowledgments

Date: