SECURE REVERSIBLE IMAGE DATA HIDING OVER ENCRYPTED DOMAIN VIA KEY MODULATION

ABSTRACT

This work proposes a novel reversible image data hiding (RIDH) scheme over encrypted domain. The data embed-ding is achieved through a public key modulation mechanism, in which access to the secret encryption key is not needed. At the decoder side, a powerful two-class SVM classifier is designed to distinguish encrypted and non-encrypted image patches, allowing us to jointly decode the embedded message and the original image signal. Compared with the state-of-the-arts, the proposed approach provides higher embedding capacity, and is able to perfectly reconstruct the original image as well as the embedded message. Extensive experimental results are provided to validate the superior performance of our scheme.

EXISTING SYSTEM:

The majority of the existing RIDH algorithms are designed over the plaintext domain, namely, the message bits are embedded into the original, un-encrypted images. The early works mainly utilized the lossless compression algorithm to compress certain image features, in order to vacate room for message embedding. However, the embedding capacity of this type of method is rather

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limited and the incurred distortion on the watermarked image is severe. Histogram shifting (HS)-based technique, initially designed, is another class of approach achieving better embedding performance through shifting the histogram of some image features.

DISADVANTAGES:

- As local smoothness does not always hold for natural images, data extraction errors can be observed in the high-activity regions.

- Further, Zhang proposed a separable RIDH method such that the protection scopes of data hiding key and encryption key are gracefully separated.

- In extended the lossless compression based RIDH approach to the encrypted domain, namely, losslessly compress half of the 4th LSBs of the encrypted image via LDPC code to create space for data hiding.

PROPOSED SYSTEM:

We propose an encrypted-domain RIDH scheme by specifically taking the above-mentioned design preferences into consideration. The proposed technique

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em-beds message through a public key modulation mechanism, and performs data extraction by exploiting the statistical dis-tinguishability of encrypted and non-encrypted image blocks. Since the decoding of the message bits and the original image is tied together, our proposed technique belongs to the category of non-separable RIDH solutions. Compared with the state-of-the-arts, the proposed approach provides higher em-bedding capacity, and is able to achieve perfect reconstruction of the original image as well as the embedded message bits. Extensive experimental results on 100 test images validate the superior performance of our scheme.

ADVANTAGE OF PROPOSED SYSTEM:

- We propose an encrypted-domain secure RIDH scheme without data hiding key.

- As will be clear shortly, the possibility of eliminating the data hiding key is not unique to our proposed method, but rather applicable for all non-separable RIDH schemes.

- Here, some design goals are slightly different from those of the existing solutions, due to the elimination of the data hiding key.

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SYSTEM SPECIFICATION

HARDWARE REQUIREMENTS

- System   : Pentium IV 2.4 GHz.
- Hard Disk   : 40 GB.
- Floppy Drive   : 1.44 Mb.
- Monitor   : 15 VGA Colour.
- Mouse   : Logitech.
- Ram   : 512 Mb.

SOFTWARE REQUIREMENTS

- Operating system   : Windows XP/7.
- Coding Language : ASP.net, C#.net
- Tool   : Visual Studio 2010
- Database   : SQL SERVER 2008