

## Enhance Novel Joint Data-Hiding and Compression Scheme Based on exemplar approach

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### Abstract

The JDHC scheme not only focuses on the high hiding capacity and recovery quality, it also integrates the image compression and data hiding into a single module. joint data-hiding and compression scheme by using SMVQ and PDE-based image inpainting. Image Inpainting refers to methods which consist with filling-in disappeared regions in a picture. Inpainting for digital images has found applications in such areas as repairing of damaged photographs, filling in or removing chosen areas, and wiping off visible watermarks. The exemplar based approach is an important class of inpainting algorithms. And they have proved to be very effective. The exemplar based approach samples the best matching patches from the known region, whose similarity is measured by certain metrics, and pastes into the target patches in the missing region.

**Key Words:** Joint Data-Hiding compression(JDHC),Side Match Vector Quantization(SMVQ),Partial Differential Equation(PDE)

### I.INTRODUCTION

With the rapid development of Internet technology, people can transmit and share digital content with each other conveniently. In order to guarantee communication efficiency and save network bandwidth, compression techniques can be implemented on digital content to reduce redundancy, and the quality of the decompressed versions should also be preserved. The existing system integrates the functions of data hiding and image compression module seamlessly. The joint data-hiding and compression scheme is achieved by using SMVQ and PDE-based image inpainting. On the sender side, except for the blocks in the leftmost and topmost of the image, each of the other residual blocks in raster-scanning order can be embedded with secret data and compressed simultaneously by SMVQ or image inpainting adaptively according to the current embedding bit. However PDE-based image inpainting algorithms were used for maintaining the structure of the Inpainting area. And hence these algorithms produce blurred resulting image and large textured regions are not well reproduced.

## II. Literature Survey

### ***1.Adaptive Data Hiding based on VQ compressed images***

A reversible data hiding based on adaptive compresses method was proposed. In this method, the VQ codebook was separated into two or more sub codebooks and the best match in one of the sub codebooks was found to hide secret data. This method increased the hiding capacity. Major drawback of this method was more distortion of extraction stage and recovered image.

### ***2.Reversible Index Domain Information Hiding scheme based on Side Match Vector Quantization***

A new index-domain method based on SMVQ was proposed. This hides the secret data on the indices of SMVQ compressed images. It consisted of two stages: encryption and decryption . This technique was very simple and had a good image quality. The sizes of the codebooks generated by the LBG (Linde-Buzo-Gray) technique are 128,256 and 512. The main focus of this technique was to compress the image without distortion. A drawback of this technique was that at the extraction stage, it was time consuming.

### ***3.An Adaptive Data Hiding Scheme With High Embedding Capacity And Visual Image Quality Based On SMVQ Prediction Through Classification Codebooks***

A multilevel reversible data hiding technique based on adaptive coding method. This method improved the quality of the marked

images. The hidden data was embedded into smooth blocks and the hiding capacity of these blocks was increased.

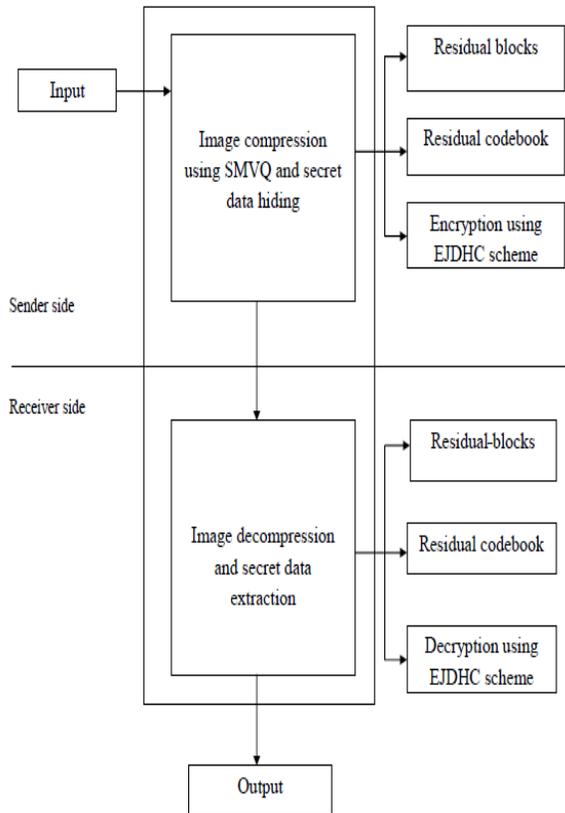
### ***4.Reversible Image Data Hiding with Contrast Enhancement***

The technique of RDH is useful in some sensitive applications where no permanent change is allowed on the host signal. The proposed algorithm was applied to two set of images to demonstrate its efficiency. To our best knowledge, it is the first algorithm that achieves image contrast enhancement by RDH.

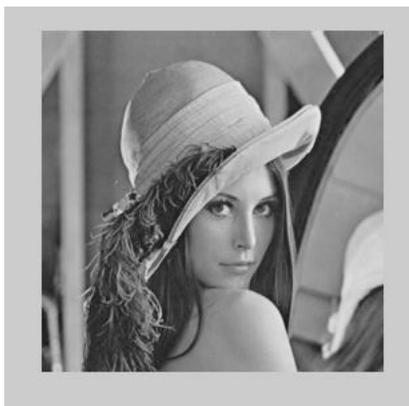
### ***5.Novel Difference Expansion Transform for Reversible Data Embedding***

Reversible data hiding, which is also called lossless data hiding, invisibly hides data (which is called a payload) into host data (i.e., pixels in image) in a reversible fashion. Good compression algorithms can compress the location map so that the size of the location map is hopefully sufficiently small. The method proposed in this paper hides more data and achieves quite high image quality in decibels compared with Kamstra and Heijmans' method. However, cases that are not much better than theirs have also been observed.

### III. ARCHITECTURE DIAGRAM



ORIGINAL IMAGE TAKEN:



SMVQ IMAGE:



### IV. CONCLUSION

The Exemplar based Inpainting algorithm which is efficient reconstructing the large target regions. Image inpainting can generate or create image regions that initially do not exist at all, based on the useful information in the close neighbourhood. Vector quantization is also utilized for some complex blocks to control the visual distortion and error diffusion caused by the progressive compression. After segmenting the image compressed codes into a series of sections by the indicator bits, the receiver can achieve the extraction of secret bits and image decompression successfully according to the index values in the segmented sections.

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