

# Data hiding in images using Hybrid Fractal Wavelets

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**Abstract**— Image Steganography is the art of hiding message into a cover image. This paper presents a novel technique for image steganography based on DWT, where DWT is used to transform original image (cover image) from spatial domain to frequency domain. This paper reviews about the art of writing hidden messages in such a way that no one apart from intended destination knows that a message has been sent. Steganography is defined as an art of hiding information and used in order to offer means of secret communication between two parties. It adopts both fractal and wavelet image processing techniques. BER and PSNR of cover image with stego-image shows the better results in comparison with other existing steganography techniques. Implementation is done in Matlab Software.

**Index Terms**-Cover Image, BER, DWT, PSNR, Steganography

## 1 INTRODUCTION

steganography in Greek means “covered writing” (Greek word *Steganos* “covered” *graphos* “writing”). The main objective

distinguish between cover image (image doesn't

1.1 **Cover Medium:**

1.2 **Stego-key:**

1.3 **Stego-medium:**

1.4 **Discrete Wavelet Transform:**

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## **2 EARLY WORK**

The United States Constitution states that “The

discoveries”. The origin of this concept, but not

Mary Tudor, Queen of England, to the stationer’s

1681, the stationer’s company retained control

### 3 PROPOSED WORK

#### 3.1 The Embedding process:

'imread' function. Suppose if we have to s  
'Hello' in an image we will firstly read it in

according to image's height and width.

### 4 RESULTS

*LSB*

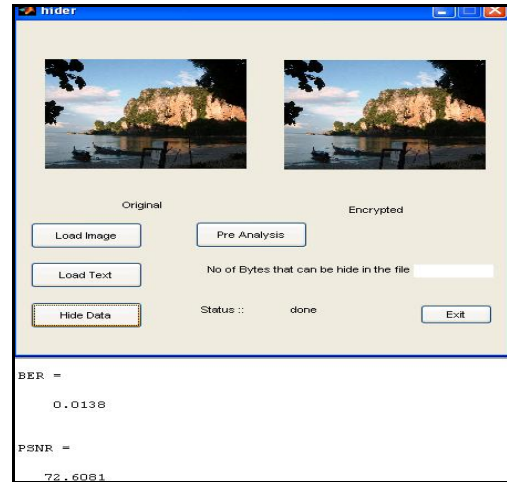
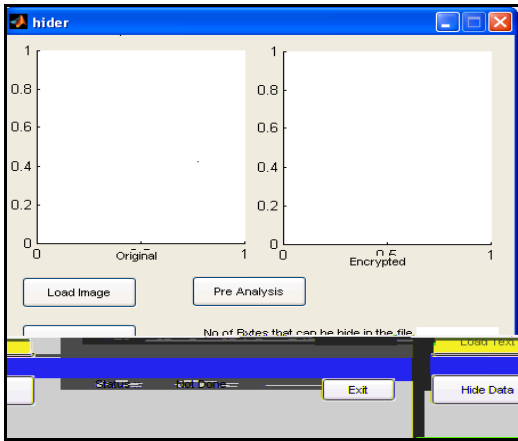
*LSB*

*LSB*

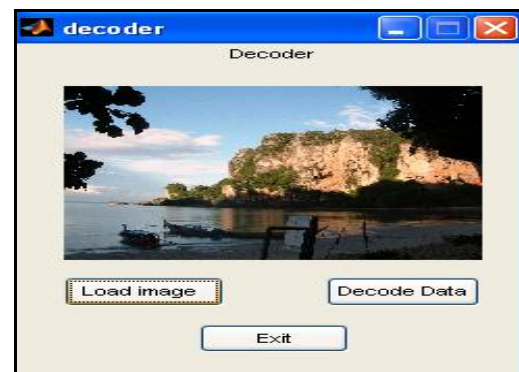
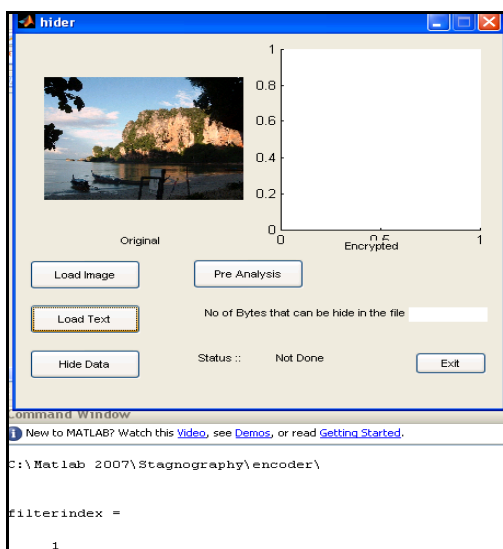
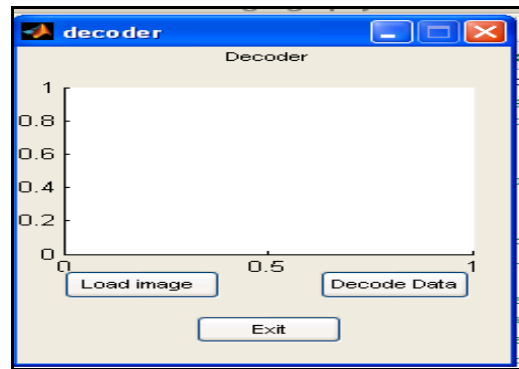
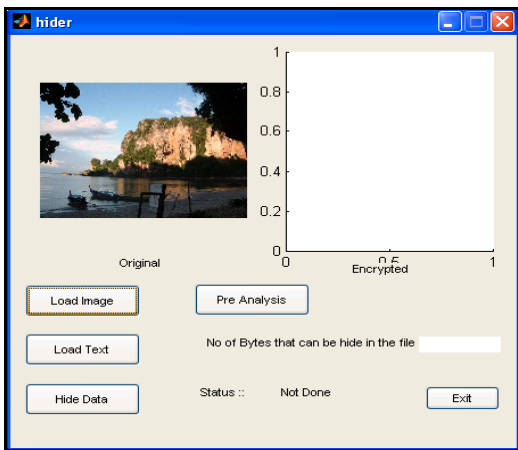
#### 4.1 Simulation Results at Encoder:

#### 3.2 Extraction Process:

*LSB*



#### 4.2. Simulation Results at Receiver:



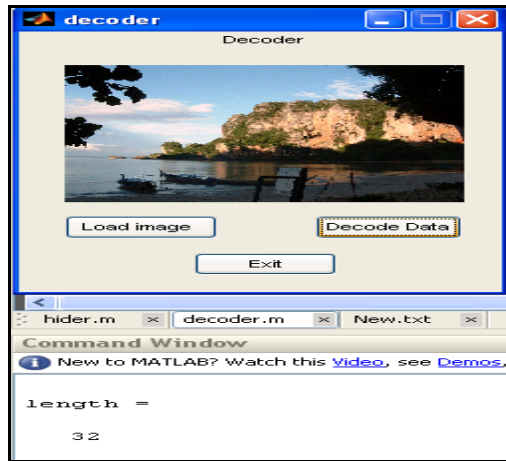


TABLE 1  
 PARAMETERS CALCULATED

Image	BER	PSNR	Length of Characters
Water	0.0138	72.608	32

$$S/N = 10\log(E/N)$$

$$PSNR = 10\log(255^2 / MSE)$$

## 6 CONCLUSION AND FUTURE SCOPE

values for color, As by using 'imread' function

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