

Calculation of PSNR Values of Images at Various Wavelets On Different Parameters

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Abstract—This paper includes the comparison of different PSNR values at different wavelets using their various parameters. In the paper we try to conclude the PSNR's highest value. At which the image has the highest quality clarity, because image with the highest psnr has the more clarity.

Keywords- psnr, haar, sym, rbio, coif, wavelets.

I. INTRODUCTION

Watermarking had received a lot of attention in a few years. Not because it provide security and copyright protection but it also provide many ways and algorithms by which it would be easier to know that if the document or information is hacked or not. Images, movies etc are easily available online and causes threat of being hacked. Actually watermarking is made up of two words water and mark which means marks of water, like marks of water are not shown on paper, in the similar way when any information is embedded into digital media like image, audio or video it could not be seen. If anyone wants to read the paper then the image again embedded at receiver's side.

But there is a threat to these contents, because of this the owner of contents getting concerned about their data. This is the era of internet in which online fraud is a normal thing. And this is the era of a generation which wants their pic of high quality. Or it can be said that this a selfie generation who want their picture in best quality, and for the high clarity image the psnr value should be high, in this paper a scheme is proposed in which psnr values of normal and watermarked images are calculated at different wavelets and then psnr value which has the maximum value is selected.

In this paper the comparison of original image with the watermarked image is done. The values of psnr at different wavelets of both the images is compared which tells us that which image has the better quality, and after watermark being applied there is any distortion or not in the image.

This comparison is done with the help of image processing toolbox in matlab. The tool provides a facility of 2-D compression image setting by which it is possible to calculate psnr values of images at various wavelets.

The work had been proposed after reading the literature [1].

II. PROPOSED SYSTEM

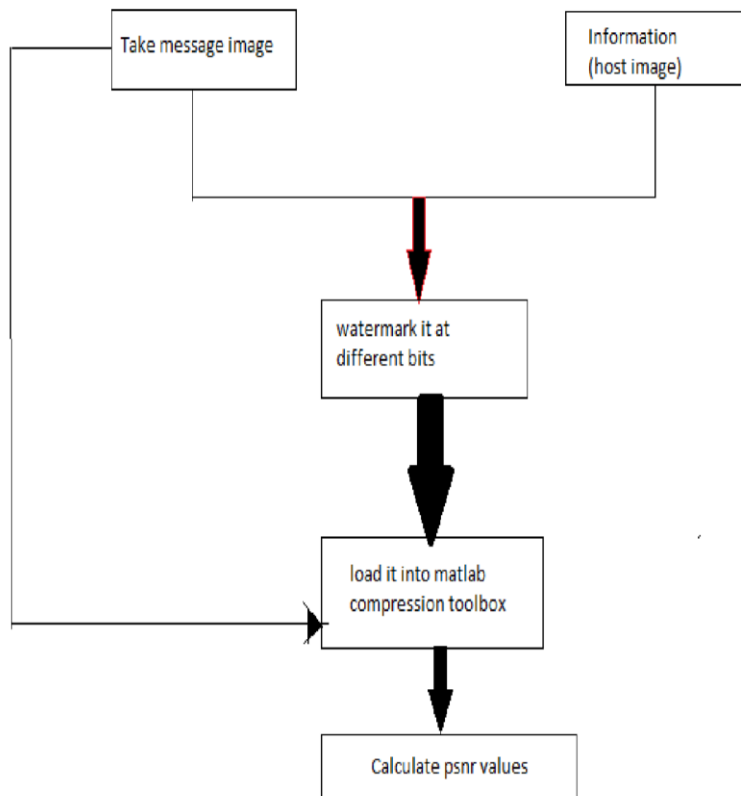


FIG2.1: PROPOSED SYSTEM TO WATERMARK IMAGES

This figure elaborates about the watermarking scheme of images, first of all image is taken as input then the other image which can be said image or information which is then embedded into the message image. And the psnr values are calculated at various levels i. e, 5th,6th,7th and at 8th bit. Then these values are compared with original image's psnr value.

III. EXPERIMENTAL RESULTS AND ANALYSIS

In this section we study about the images and their changing values according to different parameters such as if an image is original or watermarked or psnr calculation at different wavelets. So that we can find out that which image has the highest psnr so on its basis high quality image can be found out which is our motive.

Here are the images with their normal and watermarked psnr values:

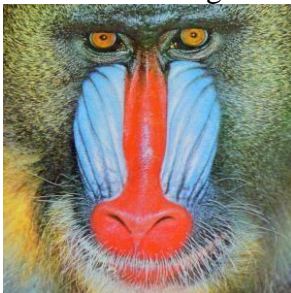


Fig : Mandril(Original)



Fig: Message image

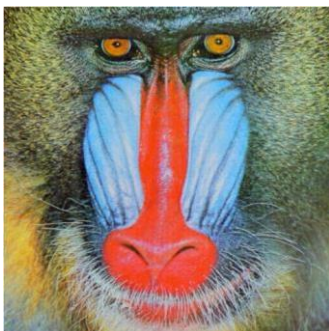


Fig: Watermarked image

The following table clears the psnr values of the images in both states i. e, original and watermarked:

3.1 Comparison at haar wavelet:

3.2

Table1: Comparison At Haar Wavelet[2]

images	psnr
original	22.77
5th watermarked	26.86
6th watermarked	22.74
7th watermarked	22.76
8th watermarked	22.76

It is clear from the table that at haar wavelet 5th bit watermarked image has the highest psnr.

3.3 Comparison at sym wavelet:

3.4

Table2: Comparison At Sym Wavelet[2]

	psnr
original	23.09
5th watermarked	27.05
6th watermarked	23.05
7th watermarked	23.08
8th watermarked	23.08

It is clear from the table that at haar wavelet 5th bit watermarked image has the highest psnr. Hence it is concluded that at 5th bit watermarked image the psnr value is highest for any image, so image quality is best at this level.

Here are the pictorial representations of both the wavelets:

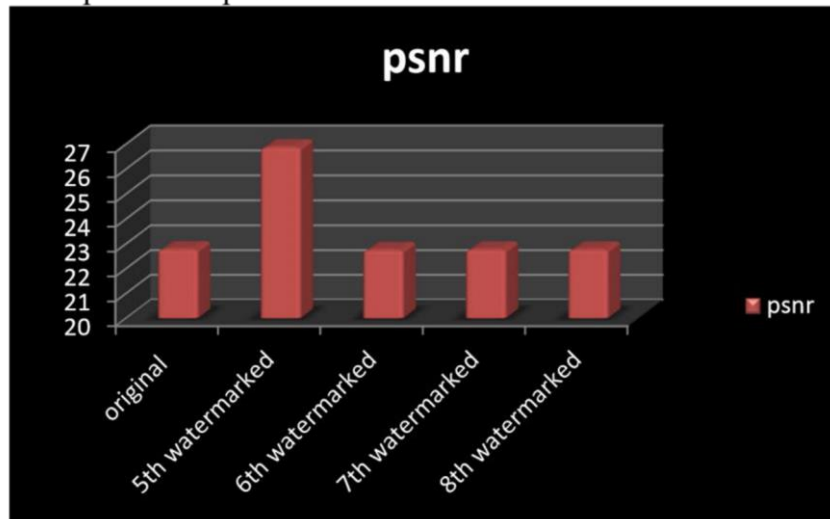


Fig3.1:psnr values at haar wavelet

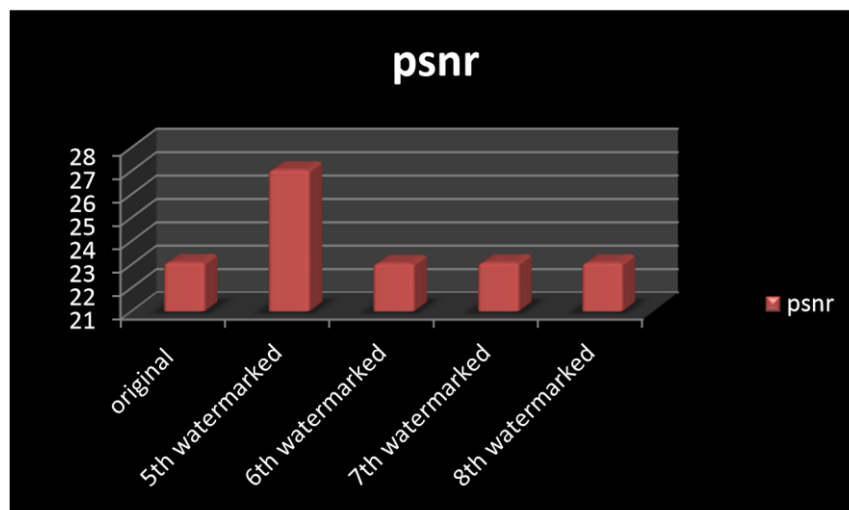


Fig:psnr values at sym wavelet

The value of PSNR has highest for 5th bit, so it is considered that at 5th level the image has the highest clarity. And if we compare two wavelets then haar is lower than sym. That means that sym has the high PSNR value then haar wavelet. The above two values also give us a conclusion that the watermarked image has high PSNR value then a normal image.

IV. CONCLUSION

In this paper a method to obtain highest PSNR value of an image has proposed. When work is been carried out on images with their original and watermarked form then it has been find out that the image which get watermarked on 5th bit got the highest PSNR value which shows the clarity i. e, best picture quality of an image.

It is concluded that image has the highest PSNR value at their 5th bit on sym wavelet.

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