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Abstract. Priority pixel enhancement for removing hindrances in acoustics. In this paper underwater sound speed gradient monitoring systems grieved in various conditions data monitoring. Compress and decompress sound waves of water molecules travel through underwater makes monitoring hindrances to ocean monitoring sensors produce dithered image data retrieving is based on pixel based algorithm to get the original point of data legible to enhance the part of the image in the priority enhancement methods in under water sound monitoring systems.

Keywords:

1. Introduction

Acoustic signal processing is used for monitoring marine conditions, planning ocean experiments; designing ocean monitoring systems etc. analyzing the device performance is the major role for researchers. The device can be scrutinized in various environmental conditions for accurate output functions. The major drawback in acoustic signals transmitted in various frequencies are unwanted frequencies interrupted from environmental conditions like rain in sea, ocean living beings, tides and artificial hindrances like submarines, ships, ocean monitoring sensors which affected the data signals. The image collected from sensors should be in improper manner to extract clear image we are using pixel priority based selecting method for image enhancement and segmentation. Reduction of noise may enhance the quality of image.

2. Types Of Underwater Noises

In ocean lot of noises which is interrupted in transmission of acoustic signals. Some kind of noises which was created by natural resources and other type of noises such as manmade resources now we briefly know about the noises which affect the acoustic signals.

Ambient noise: Ocean is the home of lot of Aquarius like fishes, whales, sharks, dolphins, crocodile etc. Some of this spices producing sound to identify objects for food, obstacles and finding their enemy species. The sound which was produced by the species which crosses

35dB in under water it makes skirmishes to the signal transmission

S.NO	AQURIAUMS	SOUND(dB)
1	BLUE WHALE	163-223
2	SPINNER DOLPHIN	108-115
3	HUMPBACK WHALE	144-174
4	FIN WHALE	155-186
5	GREY WHALE	142-185

Table (1.1) Ambient noise

Anthropogenic noise:

It is artificial noise produced by manmade sources such as communication, ship navigation, defense, research and exploration and fishing, off shore industrial activity and the sound which was generated at wide range of frequencies, from few HZ to KHZ.

In anthropogenic noise it can be used for trade purpose some times it affects the sensation of the aquarium available in sea. the noise which was above 150 db can make fringes in the water, that fringes affect the clarity in the picture and reduce the quality of the pixel.

Here we enlist the manmade resources which is more than 150 db which affects the image in the under water communication systems.

S.NO	MANMADE SOURCES	SOUND(dB)
1	SUPPLY SHIP	181
2	WAR SHIP	186
3	SUBMARINES	193
4	LARGE TANKER	171
5	ACOUSTIC THERMOMENTRIC DEVICE FOR OCEAN MONITERING	195

Table (1.2) Anthropogenic Noise

3. Existing Method For Noise Removal

Many methods are used for image denoising the basic method used for image denoising is peak of signal to noise ratio (PSNR)

The average gradient value of the image (AGVI) is also a measurement parameter, by formula

AGVI= ΣM x=1 ΣN y=1 [▲x. f '(x, y) −▲y. f (x, y)]2

▲x and ▲y is the gradient operator of the X and Y of the image M*N

The denoising values may varied by received gain of PSNR values and the method used for denoising image is adaptive varying window size method. It may have enabled through boot strap method followed steps known as resampling step and boot strap estimate.

Since square shaped windows of sizes $3^{x}3$, $5^{x}5$, $7^{x}7$, $9^{x}9$ were used in simplest boot strap algorithm should perform 9 variance calculations with window size $3^{x}3$ compare with fixed window based joining algorithm.

Fig (1.1) Denoising image in costal atmosphere

Fig (1.2) Denoising image in landscape atmosphere

The Algorithm which was implemented in the method which can be followed by wavelet based enhancement and monitoring in the following atmospheric conditions Fig (1.1) and Fig (1.2)

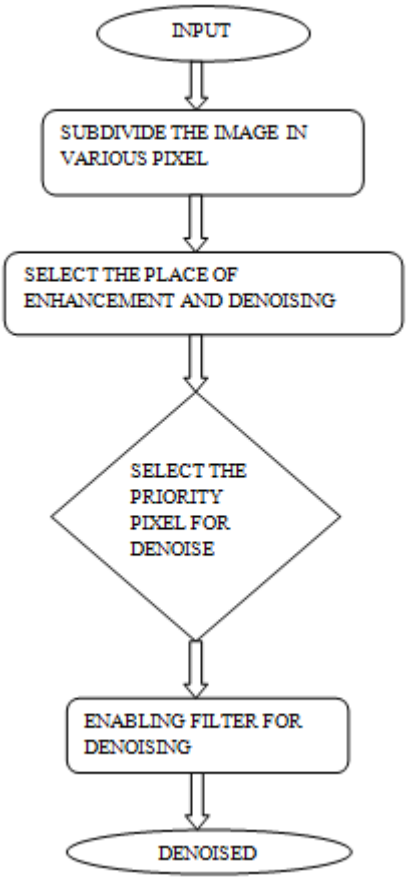
Algorithm: Based algorithm the image enhancement and denoising method may enabled by following methods.

I. Extract the input image from the environment.
II. Measurement of signal to noise ratio in the input image.
III. Enabling wavelet decomposition method to convert frequency domain.
IV. Estimate noise level and shrink the threshold value of the image.
V. Shrink the coefficients of the wavelet transform.
VI. Reconstruct the wavelets of the image.
VII. Denoising the original image

4. Pixel Priority Based Algorithm

In an input image consist of various pixels based on that subdivide the image into various pixels. The size of the image may be divided into various $3^{x}3$ subdivisions for the place of enhancement of collecting data the priority given to the particular pixel available in that place. select the priority pixel for denoising and apply based on the pixel area we subdivide in to several segments and apply weighted average filter for denoising the image.

Fig (1.3) Denoised image of underwater by sea divers



(1.4) Flow chart of priority based pixel selection

Every images are made up of pixels we split the single in to various pixels. one of the particular area of the image get enhance in clear type of pixel we optimize the technique. The pixels may splitted in to various segments. select the priority of the pixel for denoising the image. Enabling filter for denoising the image

5. Equations And Output

Fig (1.5)

3	4	6	8	9
2	5	7	9	4
1	3	5	7	9
3	5	6	2	2
2	4	6	8	9

5	7	9
3	5	7
5	6	2

The image may splitted 5x5 segments based on the number of pixels available in that area may considered as the value of the pixel. The pixel available in enhancement data is considered as a priority pixel to convert Denoised enhanced image in 3x3 dimension based on that we enabled Mean of the image for denoising

(0,0)	(0,1)	(0,2)	(0,3)	(0,4)
(1,0)	(1,1)	(1,2)	(1,3)	(1,4)
(2,0)	(2,1)	(2,2)	(2,3)	(2,4)
(3,0)	(3,1)	(3,2)	(3,3)	(3,4)
(4,0)	(4,1)	(4,2)	(4,3)	(4,4)

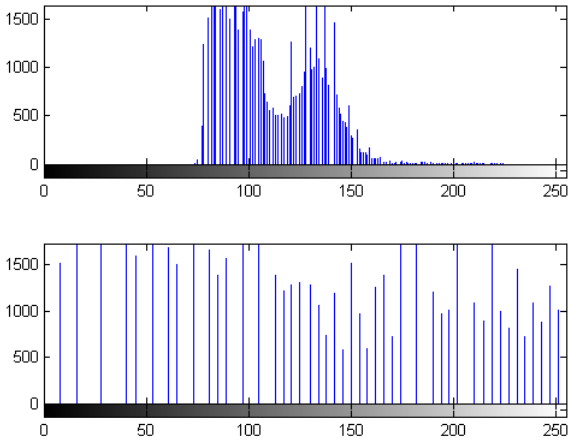
3	4	6	8	9
2	5	7	9	4
1	3	5	7	9
3	5	6	2	2
2	4	6	8	9

To enhance pixel (2,2) of the image size in to 3x3 size based on that area priority is 5

5	7	9
3	5	7
5	6	2

Mean filter= 1/9 *(5+7+9+3+5+7+5+6+2)
= ~5
The pixel used for enhancement of the image 3x3 matrix is 5.

6. Simulation Results



For equalize the image color and contrast the enhanced pixel size filter may have enabled by histogram equalization algorithm. As per the histogram the pixel color should be varied before algorithm is applied the contrast should diffuses in various angle of projection. Since the relative

distributions of the color channels change as result applying the algorithm based on this the probability of bright pixels is higher than dark pixels. the algorithm can be applied to the luminance or value channel without resulting in changes in the saturation of the color image.

7. Conclusion

In this paper we proposed a new incentive approach in denoising technique Normally in digital image processing there are various methods used for image enhancement and segmentation but the operations are presumed in atmospheric and exoatmospheric environments. under low pressure environmental conditions, the noise may extract by various type of filters but in ocean monitoring underwater ecosystem frequency and artificial device frequencies affects the data in high pressure environment. For extracting in acoustic signals various methods are enabled. here we proposed pixel priority based algorithm in acoustic signal processing..

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