# REMOVING FOG FROM THE IMAGE USING MEDIAN FILTER AND REDUNDANCY REMOVAL STRATEGY

**Simmy[1], Sharanjit Singh[2]**
[1]Student M-Tech (CSE), [2]Assistant Professor
[1][2] G.N.D.U Regional Campus
Gurdaspur

## ABSTRACT

*The image processing is used in order to produce the image which is enhanced. The noise is the common problem which is present within the image. One of the common types of noise is salt and pepper noise which is handled in this case. The median filter is the mechanism which is used in order to reduce the noise from within the image. The problem starts to appear when temperature is increased. In that case duplicate pixels start to cause the problem which is fog. In order to solve the problem redundancy is handled in the proposed paper. The proposed paper will handle the redundancy efficiently. The redundancy will result in the fog within the image. This fog elimination is the prime objective of this paper.*

***Key Words:*** *salt noise, pepper noise, median filter.*

## 1. INTRODUCTION

In image processing removal of noise becomes one of the important areas that expected to be improved. There is different type of noises that reduce the quality of the image.so image de-noising is expected to improve in order to improve the quality of the image as well as preserving edges of an image. The noise in an image induced during image acquisition, image transmission, due to noisy sensor and due to corrupted storage media. In image processing the removal of impulsive noise from an image plays a vital role for efficient image transmission for different purposes. Impulsive noise consists of salt and pepper noise. Salt and pepper noise can corrupt the images and pixels of an image consist of either maximum or minimum grey level.

There could be number of types of noises which are present within the image. In the proposed paper salt and pepper noise is considered. With this noise white dots appear within the image. In order to handle such noise median filter is commonly used. The median filter is used in the proposed paper in order to handle such noise situations. The problem will start to appear when temperature is increased beyond certain level. The white dots known as fog start to appear within the image. The prime objective of the proposed work is to handle such fog by eliminating the duplicate pixels which are present within the image. The median filter will be used if the temperature is normal. However if the temperature is increased beyond certain level then only redundancy is handled. The salt and pepper noise is describe through the following diagram

**Fig -1** Noisy image

The image clarity is reduced as fog is introduced within the image. The existing mechanism will be used only if salt and pepper noise is less. However if the degree of noise increases certain level then median filter is useless. In order to solve the problem proposed technique will be suggested.

## 2. RELATED WORK

The previous work which is done in this area is toward the handling of salt and pepper noise. Largely for this purpose median filter is used. The median filter will effectively eliminate the noise from the image. The mechanisms which are followed in various papers will be described in this section. [1] In this paper salt and pepper noise is handled. Theory of imprinting is used in this case. The image restoration algorithm is used to remove noise from the image. [2] In this mean absolute gradient is used in order to enhance the image. The adaptive noise reduction scheme is presented in this case. The impulse noise is handled in this paper. [3] The image restoration technique is used in order to enhance the quality of the image. The selective arithmetic filtering is used in order to enhance the quality of the image. [4] This paper proposes a two-phase scheme for removing salt-and-pepper impulse noise.

[4]In the first phase, an adaptive median filter is used to identify pixels which are likely to be contaminated by noise (noise candidates).[4] In the second phase, the image is restored using a specialized regularization method that applies only to those selected noise candidates. [4]In terms of edge preservation and noise suppression, our restored images show a significant improvement compared to those restored by using just nonlinear filters or regularization methods only. This scheme can remove salt-and-pepper-noise with a noise level as high as 90%. [4] The concept of median filter is used in this case. The median filter is used to enhance the quality of the image. The noise which is handled is known as salt and pepper noise. The noise produces spikes within the image which is handled in this paper. [5]Noise detector is used in this case. The noise detector detects the salt and pepper noise. However nothing is suggested to recover from that noise.

## 3. PROPOSED WORK

In the proposed work we will follow a mechanism to eliminate the fog from within the image. The median filter along with redundancy handling mechanism will be followed. The variable α will be used for this purpose which is SNR means sound to noise ratio. The value of the α will vary between 0 and 1 if the value of the α is 0 then only median filter will be used however if α is 1 then median filter along with redundancy handling mechanism will be used. The proposed algorithm will be as follows. The proposed algorithm effectively removes salt and pepper noise from an image.

Algorithm FogRemoval(Image)

a)   Input Image and store within the buffer

b)   Convert the image into bit values Bit=Imread(Image)

c)   Check for noise if noise=High then

α=1

   else

   α=0

   end of if

   d)     Modified image retrieval

 MI=α*MedianFilter(Bit)+α1*Redundancy(Image)

The second algorithm which we will use will eliminate the fog present within the image.

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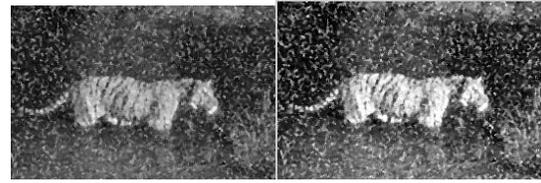
Algorithm Redundancy (Image)

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   e)   Bit=Imread(Image)
   f)   Receive the unique pixels present within the image filteredImage=Unique(Bit)
   g)   Return Filtered Image

The proposed algorithm will enhance the clarity of the image even in the presence of fog within the image. A will decide whether there exists fog within the image or not. The proposed work will enhance the image by the use of unique values of the pixels so that overlapping of the pixel can be reduced.

## 4. RESULTS

The proposed algorithm will use the median filter in order to enhance the given image. The problem will start to appear when temperature increases. The proposed algorithm will use redundancy handling mechanism in order to remove for within the image. The result of the proposed algorithm will be described below.





**Fig -2** Result of Median Filter
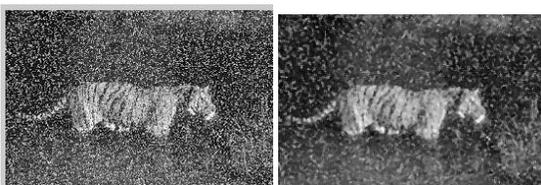
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