ABSTRACT

Visual information transmitted in the form of digital images is becoming a major method of communication in the modern age, but the image obtained after transmission is often corrupted with noise. The received image needs processing before it can be used in applications. Image denoising involves the manipulation of the image data to produce a visually high quality image. Here the approximate digital implementation of new mathematical transform namely curvelet transform was used. When the noise characteristic are complex and need of critical curve information then curvelet based approach can be used with the hard thresholding algorithm. The performance of the image denoising is shown in terms of PSNR calculation.

Over the years a variety of the methods have been introduced to remove this noise from the digital images. The image filtering is one of the technique for the removal of the noise from the images where we see that the corrupted pixels will be changed which will be based on the estimation of the noises obtained from the neighbor pixels what we called it as the fuzzy filter. This will be first trying to classify the pixel weather it is a noisy or it is non-noisy and if suppose it is noisy it will be modifying the pixel value. The filter will be comprises of the two main steps that is the classification and the filtering.

In the process of classification steps the pixels will be classified as either its is noisy or it is non-noisy and then the noisy pixels are been filtered. In my research work I will be preenting a novel multi pass fuzzy which is been based on the color image filtering using the fuzzy ATMAV, ATMED filter and design a new filter. We also show that the PSNR obtained through my research work will be much better than all the conventional fuzzy filters.

This edge detection is the pre-processing step towards the higher level of the image analysis. It is one of the way for the purpose of improving the accuracy and also the quality of the edge detection of the noisy contaminated image which will be saving the limits details and will be removing the noise. In my research work I have used MATLAB to produce model for the edge detection techniquestes.

The image will usually have different kind of noise in the process of coding and also in receiving and also in the process of transmission. Here in my research work I have implemented the curvelet transform which is been used for the denoising
of the image. This noise removal which belongs to the image restoration in the digital image processing. We cannot get a good and a satisfied result cannot be found if the processing method such as the feature extraction, registration or the image fusion is been carried out on the image with noise. So, we should remove the noise from the image which is absolutely necessary. The main aim of my research work is to remove the noise which is present in the image by using the curvelet transform and the edge detection in the image processing.

Image denoising is one of the most important and comprehensive research area in the image processing. There are several image filtering techniques and denoising applications has been proposed in the various literature that will be offering a generalized application to the specific solution for the purpose of the noise removal from the image.

The computer which will generate the graphic images will be having a different properties than the natural photographs in the sense the computer generated images has different resolution at the different scales where as the natural photography will be maintaining the aspects ratio of all the scales, here in my research work I propose a novel curvelet based technique for the purpose of denoising I have shown that the curvelet based technique results is better than the decoding of the code at higher noise levels in comparison to that of the wavelet based denosing

Over the years a variety of methods have been introduced to remove noise from digital images, such as Gaussian filtering, anisotropic filtering, and Total Variation minimization. However, many of these algorithms remove the fine details and structure of the image in addition to the noise because of assumptions made about the frequency content of the image. The non-local means algorithm does not make these assumptions, but instead assumes that the image contains an extensive amount of redundancy. These redundancies can then be exploited to remove the noise in the image. This Research Work implement the non-local means algorithm as well as curvelet transform based techniques and compare it to other denoising methods using the method noise measurement.