CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

7.1 CONCLUSION

The PND method is used for reducing Gaussian noise in the color image. In the PND, Bayer pattern concept is incorporated with PND to convert color image into gray image with reduced computational complexity compared to NLM. The sub-space selection of NLM is implemented using Parallel Analysis. From the comparative analysis, it is observed that the PND provides better results in terms of computational time, PSNR, MSE, FSIM and NCD. When compared to the results of the existing methods, the PSNR, MSE, FSIM and NCD values are not much increased as expected. In the second proposed method, the single filter called swapping bilateral filter is used for reducing both impulse and Gaussian noises. The FSIM and NCD performance metric value is increased compared to the previous method for Gaussian noise reduced color images. For impulse noise reduction, the FPG-SBF gives similar values for FSIM, and NCD value is improved when compared to Gaussian noise reduced images. While comparing FSIM and NCD, FSIM values are improved over the previous method for impulse and Gaussian noises. In order to improve NCD metric values for Gaussian and impulse noise reduction, the EFPGGA method is proposed. The Genetic algorithm-based restoration technique is combined with fuzzy technique to improve the performance of the method by means of reducing uncertainty for predicting noisy pixels in the image and also to provide optimum results for both impulse and Gaussian noise affected images. The PCA algorithm is used
to identify the noise density in the proposed EFPGGA method to reduce computational complexity in noise identification. The EFPGGA method provides high PSNR, MSR, FSIM and NCD values for both impulse and Gaussian noise reduced color images. The limitation of the proposed EFPGGA method is computational time.

7.2 FUTURE ENHANCEMENT

The EFPGGA algorithm is best suited for reducing impulse and Gaussian noise in acquisition and transmission. It gives high value of quantitative measures, but it limits the computational complexity. When the size of the image is increased, then the number of generations is also increased. In future, EFPGGA algorithm is to be tested on satellite and other higher dimensional data by incorporating the features of reducing computational complexity and number of generations.