

ABSTRACT

Image restoration is a step to get a clearer image of the image degraded by only knowing a few factors of image degradation. Image restoration is different from improving the quality of the image (image enhancement) although both of them aim to repair image quality. Image enhancement is a lot to do with the improvement of certain features in the image, while image restoration utilizing knowledge about the process of degradation to regain the image origin.

In this final project has been discussed about the image restoration technique using Lucy-Richardson algorithm and the Wiener Filter. Lucy-Richardson is an image restoration method based on iterative principles. Lucy-Richardson algorithm has some serious shortcomings that is called artifact or noise amplification. The usual practical approach to limiting noise amplification is simply to stop the iteration when the restored image appears to become too noisy.

In the final project has been conducted regarding the extent to which the system image restoration using Lucy Richardson and the Wiener filter that were designed to improve the image quality. Based on average PSNR result of five test images are knew that the performance of Wiener Filter(68,75%) generally has better than Lucy richardson algorithm (31,25%). The highest PSNR value is 27,754 dB at flower image with degradation combination by gaussian blur (5,5) and gaussian noise (0, 0.0001) result of Lucy-Richardson system, whereas the highest ISNR value is 4,27 dB mushroom image at degradation combination by motion blur (25,45) and gaussian noise (0, 0.0001) result of Wiener Filter system. Based on the MOS, Lucy Richardson generally has better result than Wiener Filter. It is still reasonable because of the limitations of human eye when identifying an image with almost the same condition. From average MOS, restoration image result get assessment score 3 that means the quality of restoration image result is fair enough.

Keywords : *Image Restoration, Lucy-Richardson Algorithm, Iteratif, Wiener Filter Algorithm*