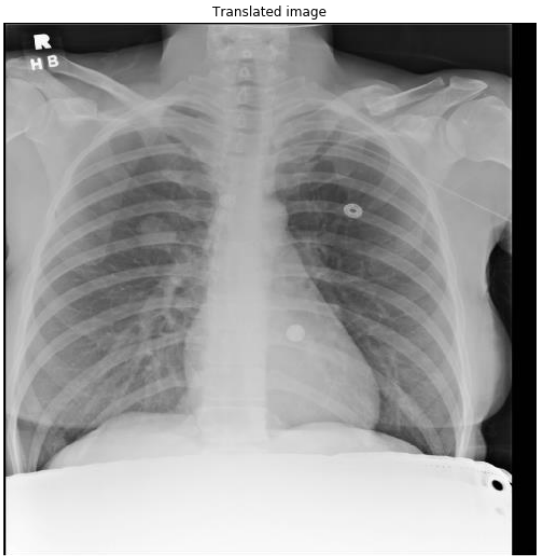
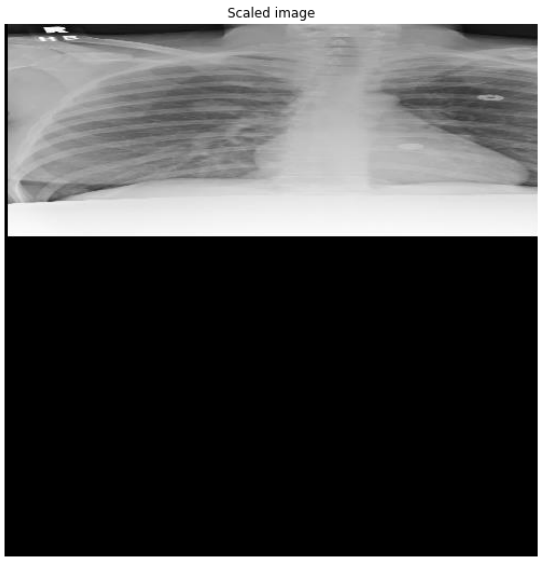
ED6001 Assignment 1
Name : Kumari Rashmi
Roll Number: EE20S051

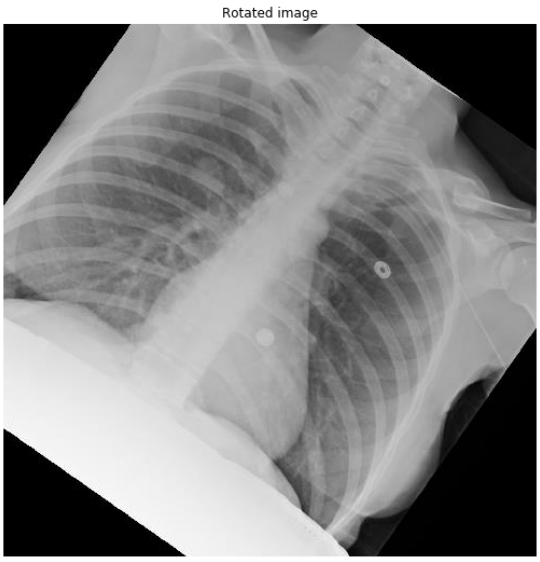
Part 1: Geometric transforms

Input Image: 00006727_004.png

Output:







My observation: # After Translating the image by given pixel values, the image got shifted towards right and towards bottom and some blank came in left
After scaling the image, the image got squeezed for both given chest x-ray

After rotating the images with given angle both images got rotated

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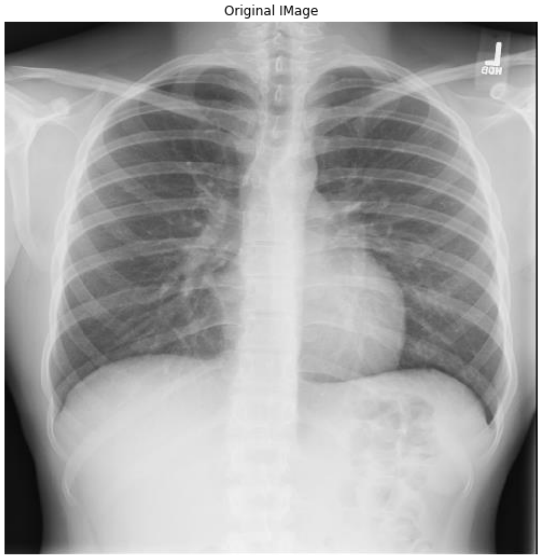
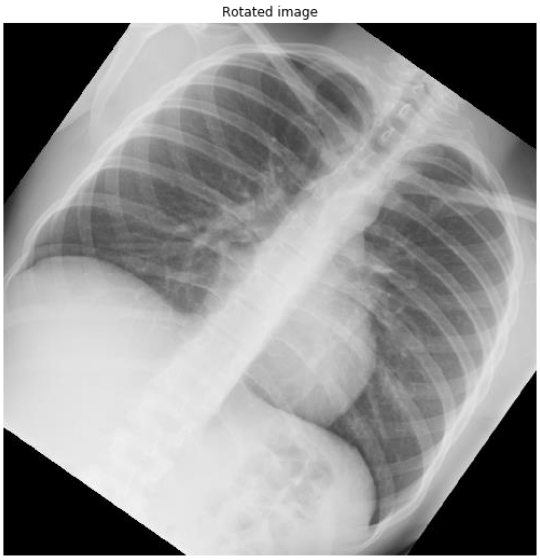
Input image: 00006728_000.png
Output:





My observation: # After Translating the image by given pixel values, the image got shifted towards right and towards bottom and some blank came in left
After scaling the image, the image got squeezed for both given chest x-ray

After rotating the images with given angle both images got rotated

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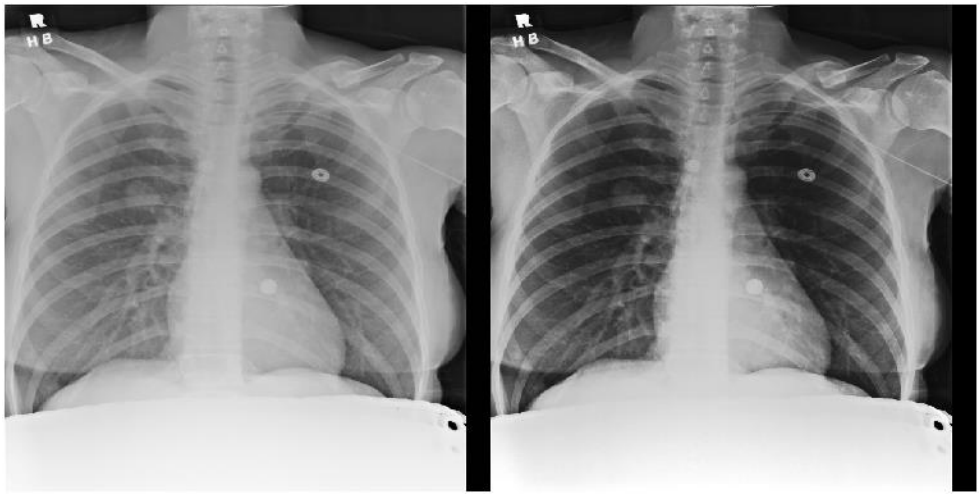
Part2: Histogram Equalization:

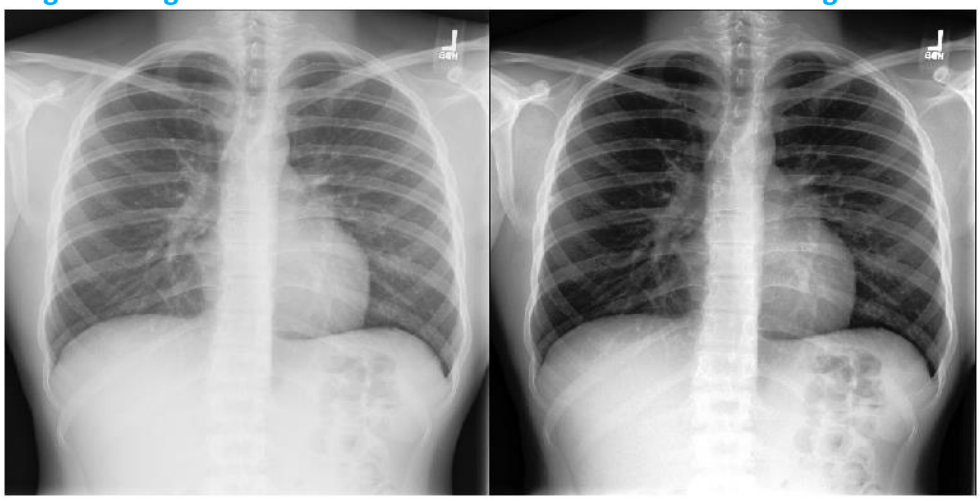
Input Image: 00006727_004.png

Original image **contrast Enhanced image**



Input Image: 00006728_000.png

Original image **contrast Enhanced image**



My observation: After histogram equalization, the image portions can be differentiated easily. We can see the different parts of the image more clearly

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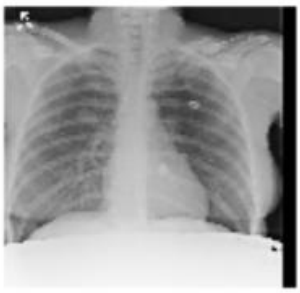
Part 3: Understanding of various types of noise and filters

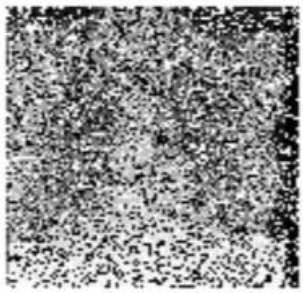
Salt and Pepper Noise:

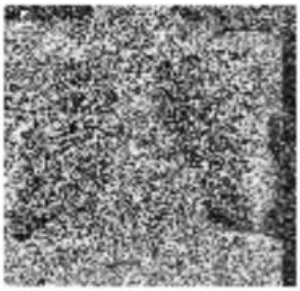
Variance 0.5

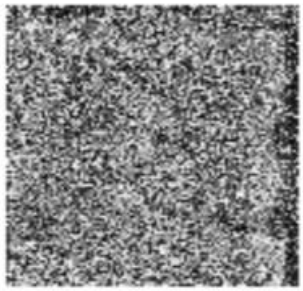
1st image is original, 2nd image is Noised, 3rd image is using mean Filter with Clahe, 4th image is Gaussian Filter with CLahe and 5th image is Median Filter with CLahe

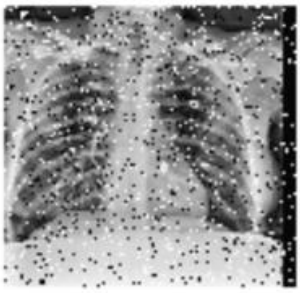
Same Order is followed for all the analysis for Part3











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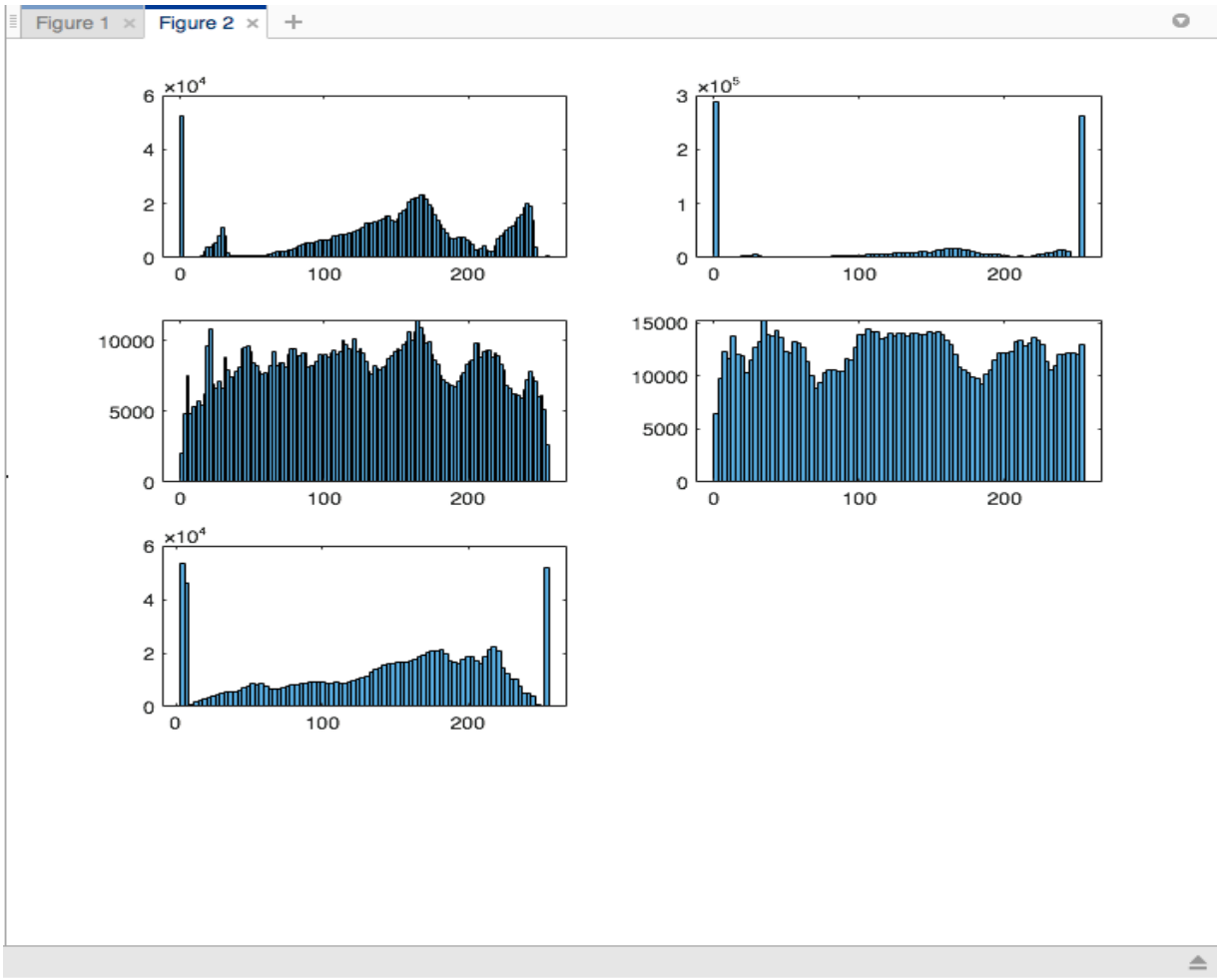
Histogram of the images :
1st image is original, 2nd image is Noised, 3rd image is using mean Filter with Clahe, 4th image is Gaussian Filter with CLahe and 5th image is Median Filter with CLahe
Same Order is followed for all the analysis for Part3



SNR Value:

Salt and Pepper with Variance 0.5

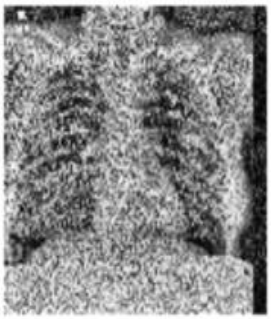
Mean Filter with Clahe: 10.2159

Gaussian Filter with Clahe: 9.2196

Median Filter with Clahe: 14.2326

ED6001 Assignment 1
Name : Kumari Rashmi
Roll Number: EE20S051

Salt and Pepper Noise:
Variance 0.2
1st image is original, 2nd image is Noised, 3rd image is using mean Filter with Clahe, 4th image is Gaussian Filter with CLahe and 5th image is Median Filter with CLahe
Same Order is followed for all the analysis for Part3



ED6001 Assignment 1
Name : Kumari Rashmi
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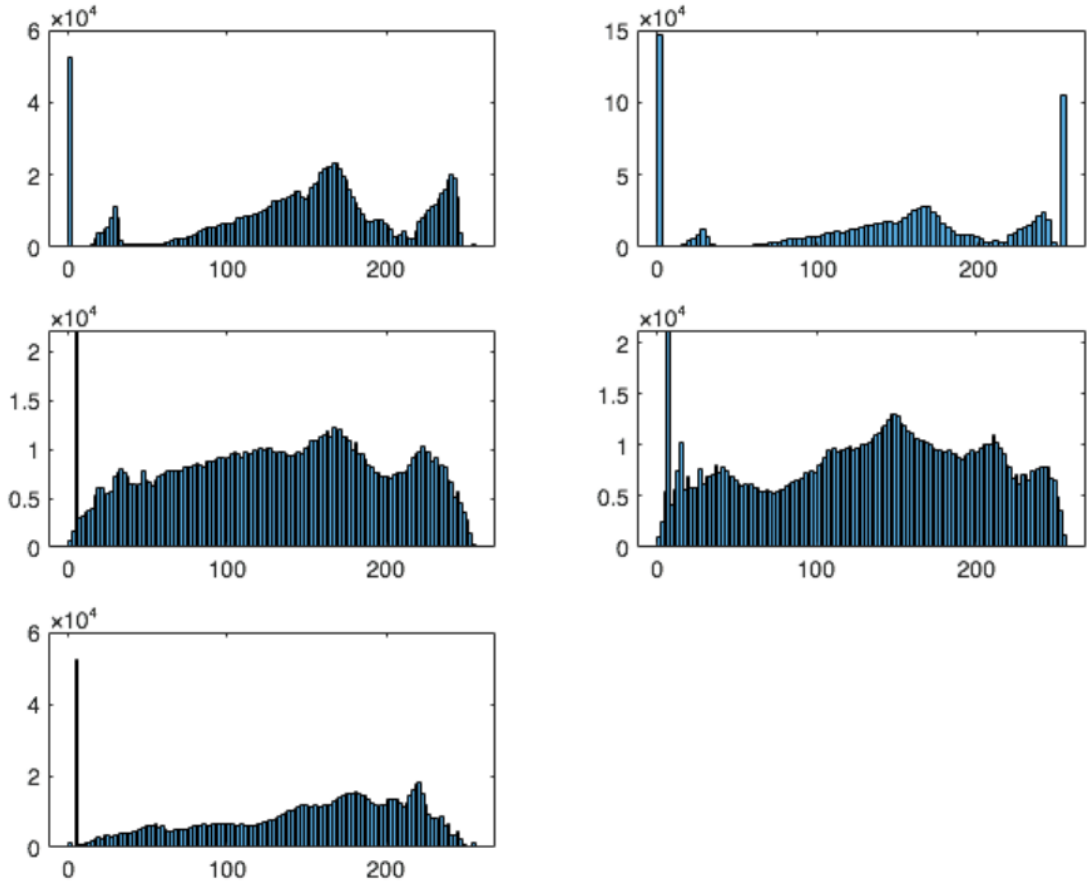


SNR Value:
Salt and Pepper Noise with Variance 0.2

Mean Filter with Clahe: 10.2159

Gaussian Filter with Clahe: 9.2196

Median Filter with Clahe: 14.2326

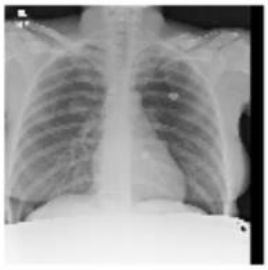
Observation: As we can see that Median filter giving best result. Histogram of the Noised image after filter using Median and Clahe is approximating the original image histogram. From image also we can see that 5th image is more clearer.

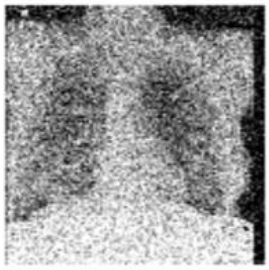
ED6001 Assignment 1
Name : Kumari Rashmi
Roll Number: EE20S051

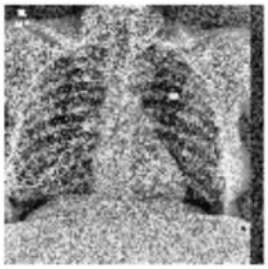
Gaussian Noise:

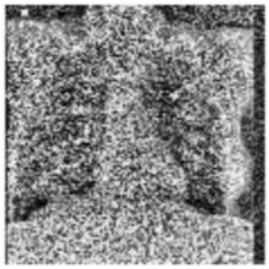
Variance 0.04 and mean 0

1st image is original, 2nd image is Noised, 3rd image is using mean Filter with Clahe, 4th image is Gaussian Filter with CLahe and 5th image is Median Filter with CLahe









ED6001 Assignment 1
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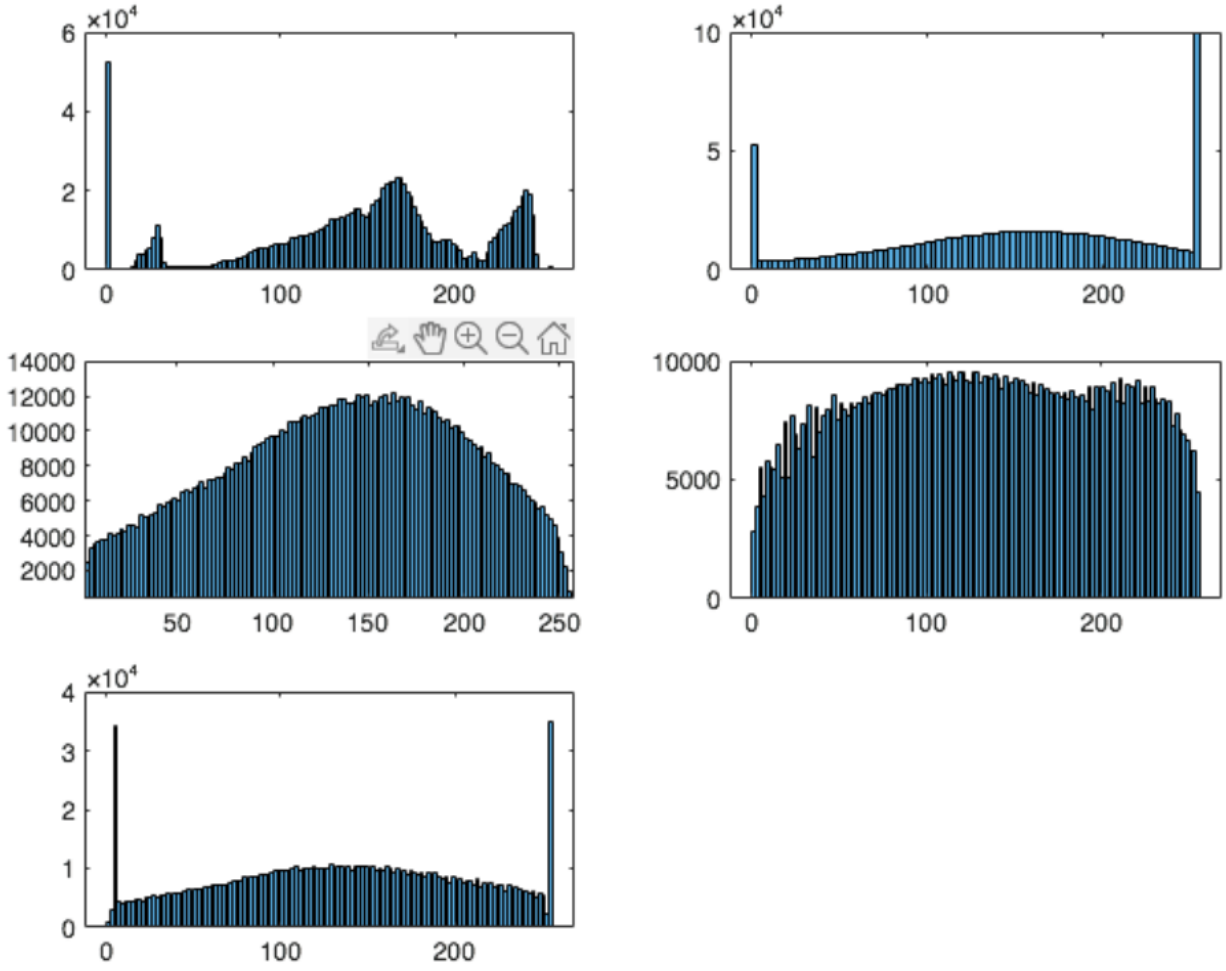


Gaussian with variance 0.04 and mean 0

Mean Filter with Clahe: 13.2092

Gaussian Filter with Clahe: 11.0312

Median Filter with Clahe: 12.6936

ED6001 Assignment 1

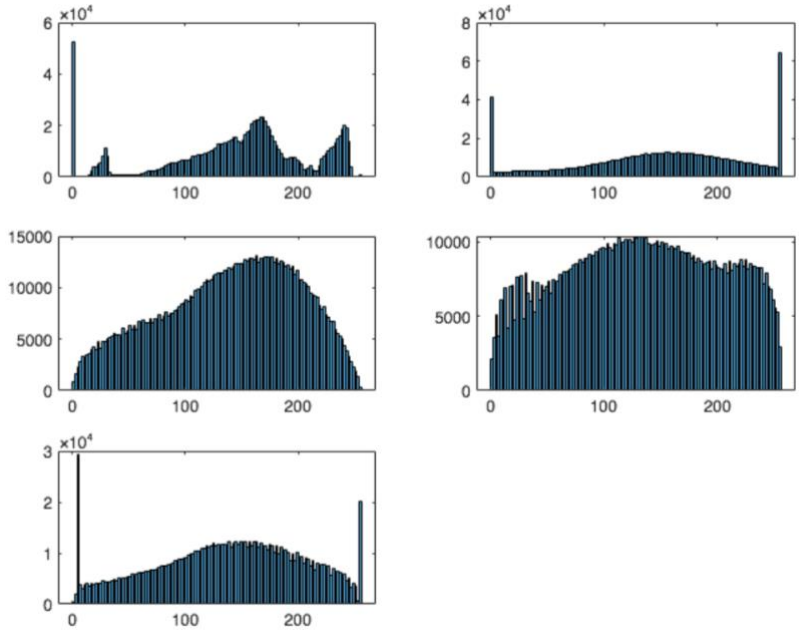
Name : Kumari Rashmi
Roll Number: EE20S051

Variance 0.02 and mean 0

1st image is original, 2nd image is Noised, 3rd image is using mean Filter with Clahe, 4th image is Gaussian Filter with CLahe and 5th image is Median Filter with CLahe

ED6001 Assignment 1

Name : Kumari Rashmi
Roll Number: EE20S051



SNR Value:

Gaussian with variance 0.02 and mean 0

Mean Filter with CLahe: 14.8594

Gaussian Filter with Clahe: 12.0009

Median Filter with CLahe: 14.0231

Observation: As we can see that Mean filter with Clahe is giving best result. Histogram of the Noised image after filter using Mean and Clahe is approximating the original image histogram.

From image also we can see that 3rd image is more clearer.