Midterm Project Report

Transforming raw mammography to representable image

Done by:

1) Ahmed Fawzi Semida - 1170523
2) Amira Ahmad Nouman -1170400
3) Rawda Ahmad Rumaieh -1170448

Image description:

- The image size is 4096x3328
- The image is 14 bits therefore the maximum gray level value is 16383
- The output image is a 12-bit image with a maximum gray level value at 4095

Steps of reaching the final image

1- Log transformation

Transformed the gray values from 0-16383 to 0-4095 (12-bit image)

[log equation]

2- Inverting the black and white of the image

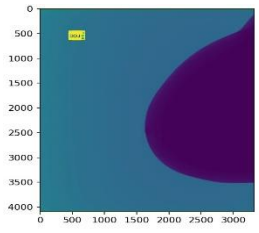
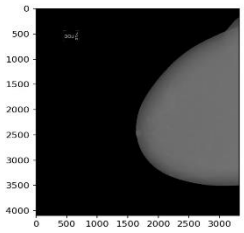
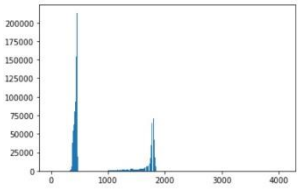
[maximum value of the pixels – each pixel]

3- Examining the histogram of the image then thresholding based on a certain pixel value (below 1000 the pixel's value = 0, while pixels above 1000 remained the same)

To avoid bright regions before histogram equalization

4- Histogram equalization using [skimage.exposure.equalize_hist] Stretches out the intensity range of the image to enhance the contrast. The intensity values we obtained after histogram equalization were ranging from 0-1

5- Remapping the values from 0-1 to 0-4095 "12 bits"

Step: 1 Input image 	Step: 2 Inverted log image 
Step: 3 Histogram before equalization 	Step: 3 Output image after equalization and remapping