Department of Computer Science & Engineering

Jahangirnagar University

LAB REPORT

Course Code - CSE-408

Course Title - Digital Image Processing Laboratory

Submitted to:

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CSE, JU

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Roll - 341

Session - 2016-17

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CSE, JU

Experiment NO - 02

Experiment Title - Image Histogram & Histogram Equalization

Objectives -

We will perform the following tasks :

(i) Image Histogram
(ii) Gamma Correction
(iii) Histogram Equalization of Gray scale image

Procedure -

(i) Image Histogram

The histogram of an image refers to a histogram of the pixel intensity values. This histogram is a graph showing the number of pixels in an image at different intensity value found in that image.

Code :

```
import skimage.io as io
import matplotlib.pyplot as plt

img = io.imread('D:\\Dataset\\7.2.01.tiff')
io.imshow(img)
io.show()
f = plt.figure()
f.show(plt.hist(img.flatten(), bins=256))
plt.show()
```

(ii) Gamma Correction

Gamma Correction or Enhancement is to make an image more suitable than the original one for a specific application. This method is useful to change the contrast and brightness of an image.

Code :

```
import skimage.io as io
import skimage.exposure as exposure
import matplotlib.pyplot as plt

img01 = io.imread('D:\\Dataset\\7.2.01.tiff')
io.imshow(img01)
io.show()
img02 = ex.adjust_gamma(img01, 0.5)
io.imshow(img02)
io.show
f = plt.figure()
f.show(plt.hist(img02.flatten(), bins=256))
plt.show()
```

(iii) Histogram Equalization of grayscale image

Histogram Equalization is one of the fundamental tools in image processing toolkit. It is used for adjusting the pixel values in an image to enhance the contrast by making those intensities more equal across the board.

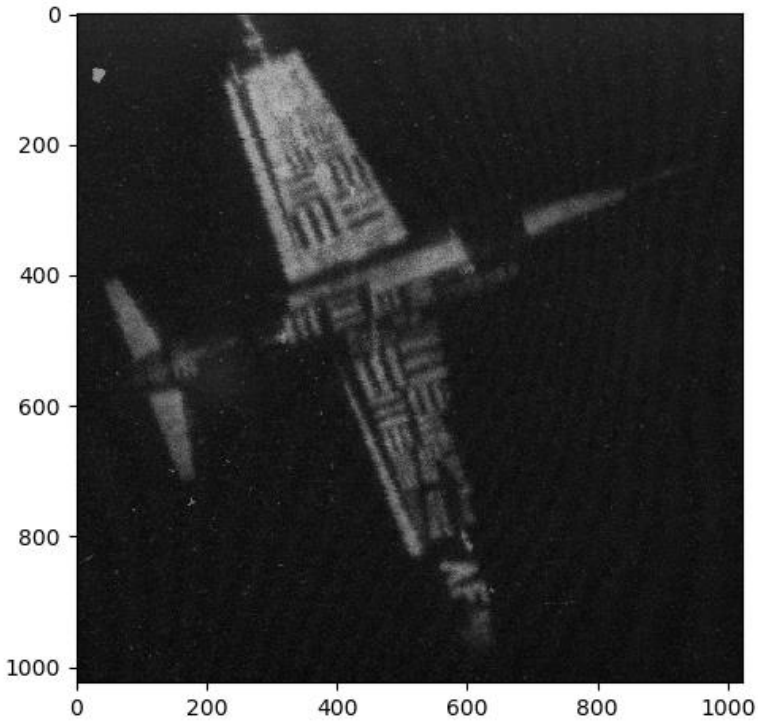
Code.

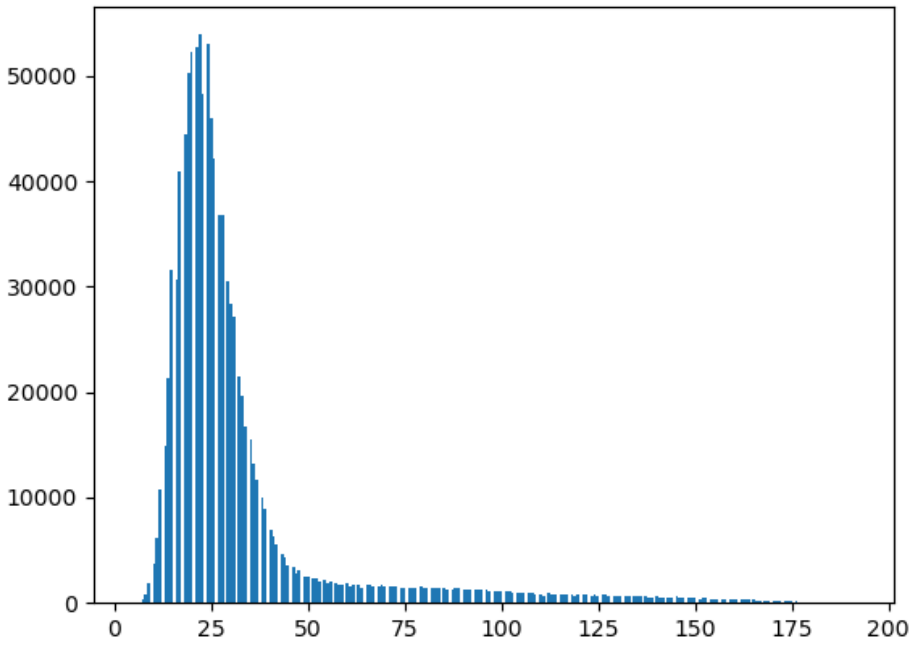
```
import skimage.io as io
import skimage.exposure as ex
import matplotlib.pyplot as plt

img01 = io.imread('D:\\Dataset\\7.2.01.tiff')
io.imshow(img01)
io.show()
```

```
img02 = ex.equalize_hist(img01)
io.imshow(img02)
io.show()
f = plt.figure()
f.show(plt.hist(img02.flatten(), bins=256))
pH.show()
```

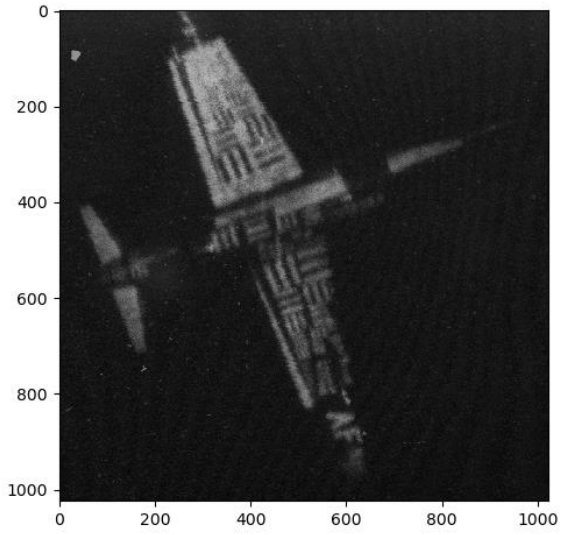
OUTPUT:

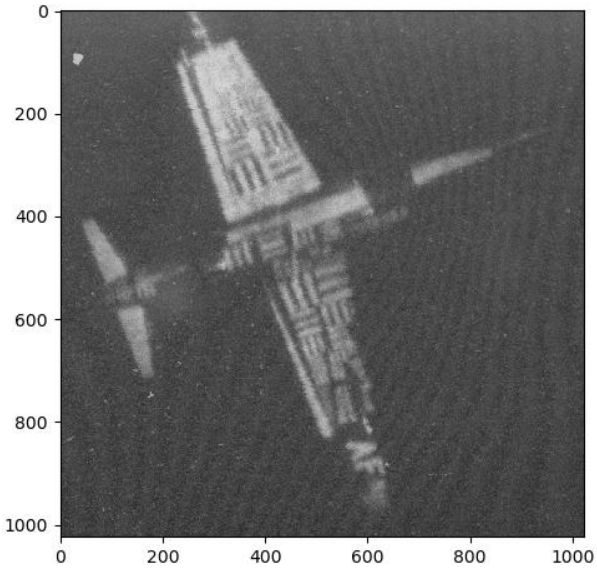
1. Image Histogram

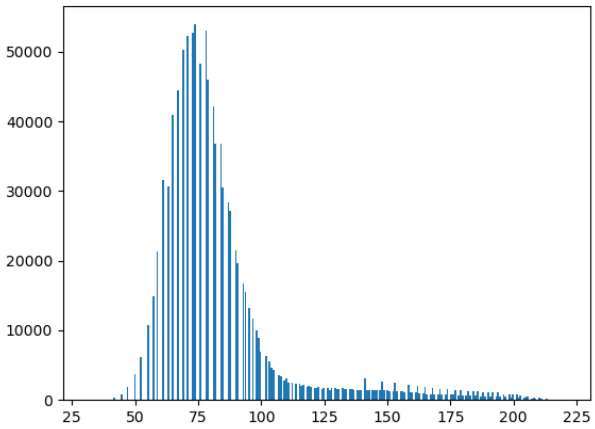




2. Gamma Correction







3. Histogram Equalization of Gray Scale Image