Cairo University
Faculty of Computers &
Information Technology
Department
Year 2022 – 2023

Sheet-1

Histogram Analysis Contrast stretching

---

1. Lab Experiments

Experiment-1: [Submitted by next week]

-Plot the corresponding image histogram

-Histogram shift by value

- Plot the cumulative image histogram

-Perform histogram equalization

-Plot modified image

-Plot modified image histogram

-Plot modified image cumulative histogram.

Hint:

1- cv2.calcHist
2- cv2.equalizeHist

Experiment-2: [Submitted by next week]

-Use image histogram to deduce parameters for contrast stretching

-Apply contrast stretching on the corresponding image

Hint:

3- cv2.LUT

1- Given the image

2	7	5	4	7	3	2
7	2	5	4	3	6	1
4	3	2	5	0	4	3
4	3	7	1	2	5	7
3	2	5	4	3	2	5
5	7	4	3	2	5	4
6	3	1	7	6	1	2

Perform the following:

1.1 Draw the histogram of the image
1.2 Draw the cumulative histogram
1.3 Perform Histogram equalization
1.4 Truncate about 10% of the image from the dark region, and also truncate about 20% of the image from the light region. And hence, perform contrast stretching operation to use the full dynamic range [0-7]

2- Given the image

3	4	6
4	5	6
2	3	5

Modify its dynamic range to fit a display of eight grey levels.

3- Modify the histogram of the following image into a uniformly distributed histogram in the interval [0,7] (*To be submitted by student in the next week)*

2	**3**	**3**	**0**	**0**
4	**0**	**5**	**6**	**3**
6	**6**	**6**	**5**	**0**
3	**0**	**1**	**1**	**2**
2	**4**	**1**	**2**	**1**