Lab-1: CS385 Computer Vision

100 points

Task-1: Basic Coding Practice

Write scripts to process an input grayscale image with following requirements. Each of the subplot needs to be labelled with an appropriate title.

1. Load a grayscale image (from the image folder), and map the image to its negative image. Display it side by side with its original version.

2. Load a colour image, Extract R-chanel, G channel and Blue channel and study.

3. Flip the image horizontally. Average the input image with its horizontally flipped image.

4. Add a random value between [0,127] to every pixel in the grayscale image, then clip the new image to have a minimum value of 0 and a maximum value of 255.

Task-2:

1. Read   an image file, and resize the image to 384 x 256 in columns x rows. Convert the colour image into three grayscale channels, i.e., R, G, B   images, and display each of the three channel grayscale images separately.

2. Take any grayscale image you have created, convert it into images having
   - Two level(Black and White image).
   - 8 Levels.
   - 16 levels .
   - 32 levels.
     Display each of these along with original grayscale image.

2. Compute the histograms for each of the grayscale images, and display the 3 histograms.

3. Apply histogram equalization to the resized image and its three grayscale channels, and then display the 4 histogram equalization images. (**Hint:** you can use inbuilt functions for implementing histogram equalization. e.g. *cv2.equalizeHist()* in Python).

Task-3: Image Creation using python

Create an image of your own. A sample is shown below