

Assignment_02

Uploaded on 14th January 2025

Submission: Before 26th January 2025

1. In Problem 04 of Assignment_01, find out the number of pixels per square inch (DPI) for both the images taken at 50 cm and 80 cm respectively.
2. Put image in attached document **Number_of_Lines_Assignment_02.pdf** in matrix form of greyscale intensity. Describe your own algorithm to count number of lines. Implement your algorithm to count number of lines in the document:
Number_of_Lines_Assignment_02.pdf

Caution: Do not use any readymade utility to solve the problem. No use of NumPy etc. 😊

3. Use different thresholding algorithms on the following image to generate and save the binary image after thresholding.



4. Draw a fence of an arbitrary shape by hand (!) on a clean paper with white background and printed lines on it as explained in the class. Take a photo of this image. Write a program
 - a) to read the photographed image and translate it to a gray scale image of size say, 300 x 300 of this image.
 - b) Use global thresholding algorithm to clean image to remove all unwanted lines on it if any.
 - c) Save original and binary image by name fence_original.jpg and fence_threshold.jpg.
 - d) Write a program to draw a filled circle of radius 5 randomly in this image (fence_threshold.jpg). Generate 50 such images. Store these images into two folders as explained in the class.
5. Write a histogram equalization code to improve the contrast of following grayscale image.
 - A) Show and save input and output (after histogram equalization) grayscale image.
 - B) Show and save intensity histogram of input and output image.
 - C) Show and save differential probability histogram of input and output image.
 - D) Superimpose the cumulative probability histogram on C); the differential probability histogram of input and output image
 - E) Obtain and store the mean intensity of input and output image

