

Digital Image Processing Laboratory Assignments

1. Write a program to read, write and store a gray level image, a color image and a binary image. If possible, display storage requirements of images.
2. Write a program to add two gray level images of same size and display the output image.
3. Write a program to transform 256 gray levels of a gray level image into 8 different gray levels and then multiply 1, 2, 3,...,8 with 8 different gray levels in decreasing order. Display the output image.
4. Write a program to reduce the gray level from 256 to 128, 64, 32, 16, 8, 4 and 2 of a monochrome image.
5. Write a program to zoom and shrink a gray level image at a desired level. To achieve zooming and shrinking, one can apply oversampling and undersampling to the gray level image.
6. Write a program to decompose an image into eight 1-bit planes ranging from 0th bit plane to 7th bit plane and set 0 to most significant bits (first 4 bits). Then subtract the resultant image from the input image and enhance the subtracted result by a histogram processing operation. Display all images in different windows.
7. Repeat the process described in (6) for least significant bits (last four bits).
8. Write a program to enhance a low contrast image using different image enhancement techniques.
9. Write a program to enhance a low contrast gray level image using histogram equalization and histogram matching (specification) and then analyse the resultant images.
10. Write a program to correct the contrast of intensity values on the use of different statistical parameters which are obtained from histogram processing operations.
11. Write a program to find 4, 8 and m adjacent among the pixels for $V = \{1\}$ in the following binary image. Here, V is a criterion based on which the adjacency can be measured.

0	1	1	0	1
1	1	0	1	1
1	0	1	1	1
0	1	0	1	1
0	1	1	1	0

12. Write a program to find 4, 8 and m adjacent among the pixels for $V = \{5, 10, 15\}$ in the following gray level image. Here, V is a criterion based on which the adjacency can be measured.

10	4	4	4	5	5	5	15	15
15	15	15	4	4	5	5	15	2
5	2	15	3	3	3	5	5	1
10	3	5	5	4	10	10	4	1
10	2	4	5	15	5	10	5	10
5	5	5	5	7	7	7	15	5
15	4	10	10	10	10	7	7	5
15	4	15	15	5	10	7	10	10
15	15	5	5	5	10	10	10	10