Barrackpore Rastraguru Surendranath College

Computer Science Honours Sixth Semester

Digital Image Processing Lab Assignments 2023

Instructions:

i. **Solve the problems using *Python/SCILAB/MATLAB/.***
ii. **Problem numbers *1 to 10* are *compulsory.* Answer *any two* from the rest.**
iii. **Submit a printed document for each assignment with solution and output.**
iv. **Add an index page in the begining.**
v. **The cover page should contain the following information.**

West Bengal State University
B.Sc. Computer Science Honours Semester-VI Examination 2023
CMSADSE05P: Digital Image Processing Assignments
WBSU Registration number:
WBSU Sem-VI Roll number:

List of problems:

1. *Read and display* an image.
2. Write down the *dimensions of an image.*
3. Display the results of *height and width reduction* of an image to 30% of its current height and width.
4. Display the color negative and grayscale negative of a color image.
5. Display the results of *flipping an image* vertically and horizontally. Also *rotate* the image by 45 degrees and 90 degrees.
6. Display the results of *down-sampling* using ‘face’ and ‘rose’ image.
7. Display the effects of *quantization* using ‘face’ and ‘rose’ image.
8. Calculate *mean value* of a grayscale image. Convert the *grayscale image to a binary image* using the *mean value* as the *threshold.* Use ‘house’ image to show the results.
9. Display the *smoothing* effects of 3×3 and 5×5 mean filters using ‘man’ image.
10. Display the results of salt-and-pepper *noise reduction* by using median filter on ‘Circuit_board_noisy’ image.
11. Display the results of *edge detection* by *Prewitt* operator, using ‘house’ image.
12. Display the *histograms* of low-contrast, medium-constrast, and high-constrast images.
13. Display the results of *morphological operation ‘dilation’ and ‘erosion’* using ‘house’ image.
14. Display the results of Laplacian enhancement technique using ‘man’ image.
15. Display the results of *unsharp masking.* Filter an image by a lowpass filter. Subtract the output from the original to obtain a sharpened image. Test your program on the image ‘blurry-moon’.

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