IPPR Assignments for Practice

IT Practices

Note: Students are expected to demonstrate the results of the following. Supporting theoretical concepts are expected during the execution.

1) Write a code for obtaining negative of the image.
   Input: Gray scale 8 bit image
   Expected output: Gray scale 8 bit image

2) Write a code for obtaining negative of the image.
   Input: 24 bit color image
   Expected output: 24 bit color image

3) Write a code for obtaining CMY equivalent of the image
   Input: 24 bit RGB image
   Expected output: 24 bit CMY image

4) Write a code for obtaining edge detection of the Image using Sobel operator
   Input: 24 bit RGB image
   Expected Output: Segmented Image

5) Write a code for obtaining edge detection of the Image using Prewitt operator
   Input: 24 bit RGB image
   Expected Output: Segmented Image

6) Write a code for obtaining edge detection of the Image using Canny operator
   Input: 24 bit RGB image
   Expected Output: Segmented Image

7) Write a code for obtaining histogram of the image
   Input: 24 bit RGB image
   Expected Output: Three separate histograms for individual RGB channels

8) Write a code for demonstrating histogram equalization in the image
   Input: 24 bit RGB image
   Expected Output:
   i) 24 bit RGB Equalized image
   ii) Original image histogram and equalized histogram

9) Write a code for demonstrating Image transformation: Scaling
   Input: 24 bit RGB image
   Expected Output:
   i) 24 bit RGB image scaled by factor 2
   ii) 24 bit RGB image scaled by factor 0.5

10) Write a code for demonstrating Image transformation: Translation
   Input: 24 bit RGB image
   Expected Output:
i) 24 bit RGB image shifted to right by 20 units
ii) 24 bit RGB image shifted to downwards by 10 units

11) Write a code for demonstrating Image transformation: Rotation
Input: 24 bit RGB image
Expected Output:

i) 24 bit RGB image rotated clockwise by 90 degree
ii) 24 bit RGB image rotated anti-clockwise by 90 degree

12) Write a code for demonstrating Image Compression. Apply Jpeg compression with suitable factor. Display Original Image and Decompressed Image
Input: 24 bit RGB image
Expected Output: PSNR value comparing Original Image and Decompressed Image

13) Write a code for demonstrating Image Transformation from spatial domain into frequency domain. Apply DCT transformation. Display Original Image and Image retried after inverse (IDCT) transform
Input: 24 bit RGB image
Expected Output: PSNR value comparing Original Image and IDCT Image

14) Write a code for demonstrating Image Transformation from spatial domain into frequency domain. Apply DWT transformation. Display Original Image and Image retried after inverse (IDWT) transform
Input: 24 bit RGB image
Expected Output: PSNR value comparing Original Image and IDWT Image

15) Write a code for applying threshold in the image.
Input: Gray scale 8 bit image and Threshold Value
Expected output: Binary Image after applying threshold

16) Write a code for demonstrating Image Normalization.
Input: 24 bit RGB image
Expected output: Normalized 24 bit RGB image

17) Write a code for demonstrating Intensity slicing in the Image.
Apply Gray-level slicing:- Highlighting specific range of intensity values.
Input: Gray scale 8 bit image
Expected output: Gray scale 8 bit image
i) With preserving the background
ii) With Non-preserving the background

18) Write a code for demonstrating Image arithmetic
Input: Two Gray scale 8 bit images
Expected output: Gray scale 8 bit image by applying
i) Addition of two Images
ii) Subtraction of two Images

19) Write a code for demonstrating Image arithmetic. Enhance any one color channel by multiplying enhancement factor.
Input: 24 bit RGB image
Expected output: 24 bit RGB Enhanced image

20) Write a code for demonstrating Image smoothening/Low pass filtering.
Input: 24 bit RGB Noisy image
Expected output: 24 bit RGB smooth image
