Assignments

Assignment	Date of demo/ submission.	marks
1. Matlab exercise. Take a real image, ex. 256X256 image, and do the following a) Read it to memory from the file and display it b) Read a portion of it to memory and display it c) Display the whole image i) Add a constant to the third quarter of the image(Take care of the overflow). ii) Multiply the first, second and fourth quarter each with different constants having value in the range 0.5 to 2.0 (Take care of the overflow). 2. Display the 3-d plot of 2-d functions using perspective projections: cos(ux+vy), sin(ux+vy), sinc(x,y), exp(-(ux+vy)), exp(-|ux+vy|), exp(-|ux+0y|), for all x,y and different values of u & v. 3. On sample artificial, 8X8 / 16X16 images, take the DFT, DCT, WT, & HT. Print the image & transform matrix side by side b) Repeat the above on real images of size 256X256, and display the transform coefficients as 8-bit intensity images along with the original images.	16-02-2012	7.5
1. Image Enhancement **i) Histogram of a gray scale image** Write a program that compute the histogram of a Gray scale image. Also plot the histogram of the three components of a color image when represented in RGB. **ii) Contrast Enhancement** a) Thresholding b) Histogram Equalization	10-04-2012	7.5

iii) Filtering Operations on images Enhance the image by the following filtering operations a) Median Filtering b) Sobel operator c) Laplacian operator d) Robert's operator. Display the image and the result of the operation in each of the case. **2. Compression** Compress an image file(256x 256X8 image) using DFT, DCT Walsh transforms and Huffman coding. Display the resulting image after decompression along with the originals, for 8 different compression ratios. **3. Image reconstruction from projections:** a) get the projection of a 256x256x8 bit image for angles from 0 to 180 with increments 5 degrees. b) Reconstruct the above image from 1, 2, 4, 8, 16, 32, 64, and 128 projections using filtered backp-rojections algorithms. Display the reconstructed image along with the original for different cases		