

Lab Assignment-2(a)

Octave/MATLAB / Python / Open CV / R

%PROBLEM-1%

Read the image Cameraman.tif and perform the following operations on it without using any inbuilt functions,

1. Rotate the Image anticlockwise by an angle of 90 degrees (Rotation around z-plane).
2. Rotate the Image by an angle of 180 degrees (Rotation around y-plane)
3. Crop the image rectangular way to form a cropped image B of dimension (N1xN2), starting from (n1xn2).

%PROBLEM-2%

Read the image Cameraman.tif and

1. Plot the histogram of the gray distribution without using the `imhist()` function. Also plot the normalized histogram for the same. Show the histogram and normalized histogram in the same figure using subplot. Use `barchart` and the `linegraph` for the plots.
2. Now plot the histogram using the `imhist()` function. Analyze the outputs obtained from both the methods. What is the effect of changing the bins while plotting the histograms?

%PROBLEM-3%

Read the image Cameraman.tif and perform the following operations on it without using the inbuilt functions. Plot the original and all the transformed images along with their histograms. Discuss the suitable application areas for each of the following transformations.

1. Form the digital negative of the image cameraman.
2. Find out the nth Root transformation of cameraman.tif for $n=0.8, 0.9, 1.1, 1.2$.
3. Log transform where, $c=1, 2, 3$
4. First of all apply the power law transform to perform the gamma correction, using $GAMMA=.1$ and then correct this image again using Gamma correction.