Image Processing Practice Using Octave software

1. Convert a color image to gray scale

Original Image

Converted to Grayscale

2. Applied Low-Pass and High-Pass Filter to Grayscale Image

Low-Pass Filter Image

High-Pass Filter Image

3. Filter Image Output by Intensity Thresh hold of 100

Thresh hold Intensity above 100

4. Octave Code Screen Shot


```
driver.m ⊠        * filter_template.m ⊠
 1  pkg load image
 2
 3  img = imread("C:/Users/rednb/Desktop/Dev-Test/ImageProcessing/Gray_Dog.jpg");
 4  img2 = imread("C:/Users/rednb/Desktop/Dev-Test/ImageProcessing/Gray_Dog.jpg");
 5  img3 = imread("C:/Users/rednb/Desktop/Dev-Test/ImageProcessing/GoldenDog.png");
 6  %filter blurs image by evening out higher intensity values (low pass)
 7  double(img2);
 8
 9  % filters
10
11  f = (1/49)*ones(7,7); % create 7x7 filter of 1
12  hif = [-1 -1 -1 ; -1 8 -1; -1 -1 -1]; % 3x3 high filter
13  f2 = hif;
14  f3 = ones(15)/255; % 15x15 low filter
15  hif2 = [0 1 0; 1 -4 1; 0 1 0];  % high filter
16
17  result = imfilter(img, f); %apply filter to image & store in result
18  result2 = imfilter(img2, f2); %apply high filter
19  result3 = imfilter(img, f3);
20  result4 = filter2(hif2, img); % filter2 option
21
22  % display output
23
24  figure(1); imshow(img);title('Converted to Grayscale', 'fontsize', 30)
25  figure(2); imshow(result);title('Low-Pass Filter Image', 'fontsize', 30)
26  figure(3); imshow(result2);title('High-Pass Filter Image', 'fontsize', 30)
27  figure(4); imshow(img>100, [0 1]);title('Thresh hold Intensity above 100', 'fontsize', 30) %thresholding, show everything in img above 100 int.
28  %figure(3); imshow(result3);
29  %figure(3); imshow(result4, []);title('Edge Detection using Filter2()','fontsize', 20) %displays high filter
30  figure(5); imshow(img3);title('Original Image','fontsize', 30) %threshold to show above 200
31
32
33
```