Foundations of Computer Vision | CSCI 631 | HW00

1.

4.
f) The quality parameter in "imwrite" function decides the compression factor for the JPEG image which ranges from 0 to 100, 0 being the image of least quality and 100 is the image of the highest quality. When I changed the quality from 90 to 5, I clearly noticed the image getting blurred where it was compressed.

Reference: https://www.mathworks.com/help/matlab/ref/imwrite.html

k) **Conclusion:**

Beginning the homework directly was not a good idea as I was stuck without understanding the specifics of Matlab. I started working on the handout given by the professor, which cleared many confusions I had about Matlab. Firstly, I understood the basics of using the Matlab command

prompt using important keywords like help, whos, save(used to save working variables in .mat files for easier development), path, addpath, editpath, clear, load, and many more. I have also created a ".mat" file after this Homework, which is ~100 MB in size. I understood the basic [difference between vector, array, and matrix in Matlab](#).

Later I explored different ways to create Matlab programs using script files and function files, which can be seen in HW00 as this program can be run using a function with a parameter.

To run the program, just run

>>   HW_00_Halemane_Ashwathsreedhar("ashwath.jpeg")

Later, I worked on reading images using "help imread" in the Matlab command prompt, imshow to display the image to the screen, converting an RGB image to greyscale using rgb2gray(image_name), resizing given image either by scaling or specifying dimensions, extracting color channels of the image to manipulate the color channels, concatenate channels to create an image using cat() function where the dimensions must be consistent, round function, size function which is important while working with images, imwrite function to save the image and change it's quality, inverting part of the image using matrix manipulation of changing values of particular rows and column, inverting single color channel, converting image to double type for higher accuracy using im2double function, using imagesc to display and compare images, convert image to hsv model and splitting different channels and displaying image and so on.

To conclude, I have gained basic knowledge of Matlab to read images, manipulate matrices and so on to manipulate images and extract their information.

Current Folder

HW_00_Halemane_Ashwathsreedhar_DIR (Folder)

Workspace

Name ▲	Value
A	512x512 uint8
ans	450
B	257x257 uint8
blueChannel	600x400 uint8
C	257x257 uint8
classmate_profile_...	1342x1371x3 uint8
columns	1536
depth	3
difference_image	1000x1600x3 double
double_classmate	1342x1371x3 double
double_my_profile	2048x1536x3 double
G	1000x800x3 double
greenChannel	600x400 uint8
greyscale_image	2048x1536 uint8
H	1000x800x3 double
I	2048x1536 uint8
im	2048x1536x3 uint8
im_composite	1366x1024x3 uint8
im_down_left	683x512x3 double
im_down_right	683x512x3 double
im_hsv	3000x4500x3 double
im_hue_only	3000x4500 double
im_small	683x512x3 uint8
im_up_right	683x512x3 double
newBlueChannel	600x400 uint8
newGreenChannel	600x400 uint8
newRedChannel	600x400 uint8
NewRgbImage	620x440x3 uint8
redChannel	600x400 uint8
resized_classmate	1000x800x3 double
resized_my_profiel	1x1x3 double
RGB_profile_pic	2048x1536x3 uint8
rows	2048
shrunken_profile_...	600x400x3 uint8
sizeofshrunken	[600,400,3]
ss	[512,512]
subracted_image	1000x800x3 double
swapped_channel...	600x400x3 uint8
Z	1000x800x3 uint8