

EE 152: Digital Image Processing (Winter 2018)

Lab 1

Due date: January 18, 2018

Homework and lab assignment submission policy:

All homework and lab assignments must be submitted online via <https://iLearn.ucr.edu>.

Solutions should be written and submitted individually. Discussions among students are encouraged, but answers must not be copied.

All assignments should be submitted by the due date. There will be 25% penalty per day for late assignments. No grade will be given to assignments submitted 3 days after the due date.

Use the `publish` tool in matlab to generate your report. Look up *publishing matlab code* to see some examples. Submit your pdf report and m file

- L1.1 Capture a color image of yourself and save it as `{your name}.jpg` (Mandatory)
- L1.2 Import the image into Matlab using `imread()` function. (1 point)
You may want to read Matlab documentation about different functions along the way (e.g., `doc imread`, `imwrite`).
- L1.3 Display your image using `imshow()`, `image()`, `imagesc()`. Note that some of these functions do not work with RGB images. Convert RGB image to grayscale, if needed, using `rgb2gray()` for display. (1 point)
- L1.4 Resize your image to 256×256 resolution using `imresize()`. (1 point)
- L1.5 Manually select and crop a region in the image that contains your face alone. For instance, if your face lies within a rectangle with corners `(y_topleft, x_topleft)`, `(y_bottomright, x_bottomright)`, then use `face_image = full_image(y_topleft:y_bottomright, x_topleft:x_bottomright,:)`. (1 point)
- L1.6 Replace the region of your face with a box that has White, Black, Red, Blue, and Green stripes. (2 point)
- L1.7 Resize face image to 64×64 resolution. (1 point)
- L1.8 Save your resized full image and face image using `imwrite()`. (1 point)
- L1.9 Plot a histogram of intensities in your full and face images for each color channel. Use `hist()` to compute histograms and `plot()` to plot each histogram. (2 point)

Maximum points: 10