# CSE487
# Spring 2020
# Assignment 1

### Brightness, contrast, Equalization, edge detection, smoothing, sharpening
### Due Date: 13.04.2020 23:59

In this assignment you should create an interface in MATLAB that will do the following:

-Open a gray level or color image and display it on the left of the interface window (axes1).

-The results should be displayed in a separate place on the right (axes2)

-Create two sliders one for brightness and one for contrast. The sliders should interact dynamically and simultaneously in the image together or separate. They should start from the middle. On the right of the sliders they should give their maximum effect (for example white on the right and black for the left for brightness).

-Have a button for histogram equalization. Only for gray level images. That means if an image has colors you should convert it to gray.

-Have a button for Edge detection.

-Have a button for Gaussian Smoothing. You should have a parameter for the size of the filter in a text box and the sigma of the gaussian function.

-Have a button for Sharpening

**You are not allowed to use the ready functions of MATLAB for brightness, contrast, edge detection, sharpening, gray scale conversion, histogram creation and histogram equalization. You should program them yourself.**

You can use the ready function for gaussian smoothing.

You may use the following functions: *imread*, *imwrite*, *imshow*, *im2double uint8*, *rgb2hsv hsv2rgb*, *conv2* or the command for choosing the filename *uigetfile*

A small demo for each of you is required in order to be graded.
Demos will be on Google Meet and the date will be announced after the deadline.
You should also upload your code in COADSYS.