German University in Cairo
Faculty of Media Engineering and Technology
Winter 2019

DMET 901 – Computer Vision

Assignment #3

(Due on: December 11, at mid-night)

(This assignment can be done in teams of maximum 2 students – Please include a text files with your names and IDs in the submission)

Implement a modification of the optimal thresholding segmentation algorithm given in class to allow segmenting an image to multiple levels instead of only two. The modified algorithm should compute n thresholds instead of computing a single threshold. The function should take as inputs the image to be segmented and n. The function should return the computed n thresholds, a binary image for each segment and one segmented gray-scale image with each segment assigned a different gray-level. Apply your algorithm to the image "GUC.jpg".

Deliverables:

- Your code.
- The output of the function when applied to the image with $n = 3$. The thresholds should be saved in a text file named "Thresholds_3.txt", while each of the binary images of the segments should be saved in an image named "GUC_3_*x*.jpg", where *x* should be replaced with the segment number. Finally, the gray-scale segmented image should be saved in an image named "GUC_3.jpg".
- The output of the function when applied to the image with $n = 4$. The thresholds should be saved in a text file named "Thresholds_4.txt", while each of the binary images of the segments should be saved in an image named "GUC_4_*x*.jpg", where *x* should be replaced with the segment number. Finally, the gray-scale segmented image should be saved in an image named "GUC_4.jpg".