



CNG 466 – FUNDAMENTAL IMAGE PROCESSING TECHNIQUES

Fall 2020-2021

Assignment 3

**Image Segmentation and Morphology
(Mainly Lectures 7, 9 and 10)**

Objectives:

The purpose of this assignment is to familiarize yourselves with the color image processing, image segmentation and morphological image processing techniques. For this assignment you are given eight different images of partial orange trees. Your job is to process the images and identify the number of oranges in each image.

Description:

You are required to identify the number of oranges in the images `img1.jpeg` – `img8.jpeg` shown in Fig.1. In order to count the number of oranges in each image, you first need to segment oranges and then count. Your algorithm should not be specific for each image, but can be specific to all of these eight images. Implement your solution as a MATLAB script named `A3_StudentID.m` which processes all images. After running the script, the number of oranges with respect to each image should be displayed.

Grading:

- Segmentation accuracy
- Counting accuracy
- Displaying output
- Short explanation (reasons) of used techniques.

Regulations:

- 1) **Programming Language and Implementation:** You must code your program in MATLAB. You must use comments to explain what your code is doing step by step. You are expected make sure your code runs successfully. In your solutions you are NOT allowed to use matlab built-in function for segmentation.
- 2) **Submission:** Submit ONLY one .m files. You are allowed to write functions in this .m file.
- 3) **Deadline:** 20/12/2020 @22:55
- 4) **Late Submission:** Late submission is not allowed.
- 5) **Cheating:** Please read carefully cheating policy from the course syllabus.

Please note that failing to do any of the above regulations may result as zero grade.



Fig.1: Part of the Orange Tree Images