MIDDLE EAST TECHNICAL UNIVERSITY
NORTHERN CYPRUS CAMPUS

CNG 466 – FUNDAMENTALS OF IMAGE PROCESSING
Fall 2019-2020

Project

Group Info. Deadline: Due on 15 December 2019, Sunday, 23:55. Link for entering your group information: https://docs.google.com/spreadsheets/d/1m6te57_uMpKpVMoqCdhW8vovXxXRgSUvZpyj0VTYur4/edit#gid=0

Submission Deadline: Due on 30 December 2019, Monday, 23:55.

(Note the 1 Hour time difference between North Cyprus and Turkey. Hence, system will be closed at 22:55).

Evaluation Deadline: Evaluation (questions&answers) of your submission will be held during the final exam week at my offsice S-143. Schedule of several times and days will be announced from ODTUClass and you will choose the slot that suits you. Link to enter your prefered time will be announced as soon as the final exam schedule is fixed.

Project Policy: Failing to do any of the following rules will result as _**zero grade**_ (i.e. your submission will not be accepted and will not be evaluated);

- You must not enter or change your group information after 15 December 2019.
- Your code must be written only in **one** .m file. You can define functions in the same .m file.
- Your .m file name should start with word "group" followed by your group number. For example; group1.m.
- You must write your group members name, surname and student ID as a comment at the beginning of your .m file.
- Your code must be compiled. For instance, when I run your code, it should work without need for any changes (i.e. sytanxt errors, need for path definition, input etc.). You must assume that the given "dataset" will be in the same folder (as it is given to you without any changes) with your .m file.
- You must use comments to explain what your code is doing step by step.
- You must be able to explain every single statement in your code. Hence, do not use any statement if you dont know it. Give appropriate references for used materials, but copying codes from any material is strictly forbidden.
- You must only upload your .m file to ODTUClass. Submission should be done by **only one** group member.
- Late submissions will not be accepted (any kind of excuse will not be acceptable). Hence, do not wait last minute to upload your project.
- You must choose the suitable date and time for your project evaluation. Deadline for this will be announced later. Check your emails regularly.
- You must come to your project evaluation on time.

Project Description:

In this project, you will design and develop an algorithm to segment and recognize the animals in images.

- Your code must include two main procedures;
  1) A segmentation algorithm that is able to separate animals in images.
     - Your segmentation algorithm must use both spectral (color, contrast, texture etc.) and spatial (boundaries, shape, size, orientation etc.) information, how and which to use you will decide.
     - Your segmentation algorithm must not include any image specific solution.
     - Overall performance of your segmentation algorithm will be computed (by a visual inspection of all images) as the percentage of correctly segmented images.

  2) A recognition algorithm to recognize animals using segmentation results.
     - Your recognition algorithm must include training and testing sets. Use validation method (e.g. k-fold cross-validation, leave-one-out, hold-out etc.) for this purpose. How and which to use you will decide.
     - Your recognition algorithm must include classification technique (e.g. knn, naïve bayes classifier etc.). How and which to use you will decide.
     - The overall performance of your recognition algorithm will be computed as the total number of correct classification of test images divide by the total number of test images.

- The programming will be implemented in Matlab.
- Except for these restrictions, you are completely free at the design of your own algorithm.
- Finally, you will clearly explain your algorithm step by step and discuss the results (i.e. its performance) at the end of your code.
- Each group member is responsible from the entire project. Questions will be asked randomly.
- You must use comment and discuss the results (i.e. performance) of your segmentation and recognition algorithm at the end of your code.

Grading Policy:

		Grade (%)
Segmentation	Spectral Info	15
	Spatial Info	15
	Performance	5
Recognition	Validation	5
	Classification	15
	Performance	5
Discussion	Segmentation	5
	Recognition	5
Design structure		5
Questions & Answers		25

*** Please note once more that failing to answer questions will be directly result as zero grade.***