

Int. To Deep Learning –HW#3

About the Assignment

The main aim of the assignment is to make you familiar with a traditional classifier by using KNN. Contributions of this lab are;

- Learning the K-NN classification method.
- Understanding the idea behind the classification task.

Submit the Assignment

Send your code and pdf document as zipped and rar.

Ex: Name_Surname.zip

Hint

Look at the example in lecture notes.

Step1:

Read train images from train folder and convert images to vector format by writing a snippet code. It means that an image with 256x256x3 channels, must be converted to 128x128 format. Later, convert image to 1x16384 vector. There are 80 ***laptop*** images, 61 ***chair*** images and 90 ***butterfly*** images in train folder.

Step2:

Write a KNN function send the parameters of

```
def KNN(x_train, y_train, sample_test, k )  
return 0
```

x_train holds image data related to ***butterfly (1)***, ***chair (2)*** and ***laptop (3)***.

y_train holds labels as ***butterfly (1)***, ***chair (2)*** and ***laptop (3)***.

Sample_test is an image from test folder.

k is the nearest neighbor size and it is equal to 7.

The KNN function should return the most similar class name for sample_test. In case of computing the similarity, you are expected to use the Euclidean distance, which is explained in lecture notes by Teacher in class.