German University in Cairo
Faculty of Media Engineering and Technology
Spring 2022

DMET 1002 – Advanced Media Lab

Mini Project 1

# Road Segmentation Based on K-means Clustering

## Project Description:

For drivable area extraction and segmentation, there exists multiple algorithms to tackle the issue.

In this project, you are asked to implement simple road segmentation based on K-means clustering.

# Task 1

You need to follow the following steps in order to perform the prior mentioned task:

1. Read the image.
2. Find a suitable pre-processing step to help with the road segmentation (Might need to see the segmentation mask output first.)
3. Use 4 clusters as initial centers for the K-means algorithm with the following centers:

```
C = [100 100 100 ;128 128 128 ;175 175 175 ;255 255 255];
```

4. Process the output of the K-means to retrieve an image back.
5. Find the cluster that represents the road.
6. Mask the road pixels and put it separately in a new image
7. See the output and suggest a suitable post-processing step to improve the output.
8. Save the final output as a .png.

## Submission Details:

The deadline for the submission is on the 27th of March 2022.

Your code is to be documented with comments and submitted along with the output road masked image.

Your project should be sent as google drive link to this email:

mohamed.ihab-sabry@guc.edu.eg

Good Luck ☺