School of Computing
National University of Singapore
CS4243 Computer Vision and Pattern Recognition
Semester 1, AY 2017/18

Lab 5: Background/Foreground Separation
Due Date: 6th Oct 2017 2359hrs

Objectives:

- To experiment with the averaging technique that we learned in class and use it to do background/foreground separation for videos taken using stationary cameras (please refer to lecture notes CS4243_L05_Color_v9.pdf slide #33).
    - Note that by "background", we mean the pixels that belong to the stationary part of the scene.

Preparation:

- Download the zip file lab5.zip into your working directory. Unzip the file and you should find the following: `traffic.mp4.`

Background Extraction in Video

Write a Matlab program to do the following:

1) background extraction in video
2) extract the moving objects in the video

Hints:

- Step 1: read the .mp4 video using VideoReader. Do a help VideoReader in Matlab command prompt to learn how to use it.
- Step 2: use the methods in VideoReader object to display the following:
    - Total length of video file in seconds
    - Height of the video frame in pixels
    - Width of the video frame in pixels
    - Bits per pixel of the video data
    - Video format as it is represented in Matlab
    - Frame rate of the video in frames per second
- Step 3: get the background by averaging away the foreground (i.e. moving) objects.
- Step 4: extract the moving objects from the video. Show the results for the first frame and the last frame of the video.

Submission Instruction

Submit the softcopy of your Matlab code and the resultant images of Step 3 and Step 4 above to IVLE by the due date.

Please put all your files in a folder and submit the folder. Use the following convention to name your folder:

StudentNumber_yourName_Lab#. For example, if your student number is A1234567B, and your name is Chow Yuen Fatt, for this lab, your file name should be A1234567B_ChowYuenFatt_Lab5.