Assignment 1

Using Matlab implement the following exercises

1.1 Frame Difference (10 points)

Simply Subtracting 2 Consecutive frames from a video can detect the moving objects in those frames.

Input:

- 2 RGB images (2 Consecutive Frames from a stable camera).
- Threshold

Output:

Binary Image representing moving objects.

Example:

- Input Images

Frame 1

Frame 2

- Output:

1.2 Background Modeling (20 points)

a) Static Background Modeling
b) Moving average Model

You should have a background frame as a reference and compare each frame with the background frame. In part a, you are required to have one reference for all the frames but in part b the reference is the average of the last n frames.

Input:

- Sequence of Images
- Threshold
- Number of reference frames

Output:

Sequence of Binary Images representing Moving objects on those frames.

Example:

- Input Images

Background Frame

Current Frame

- Output

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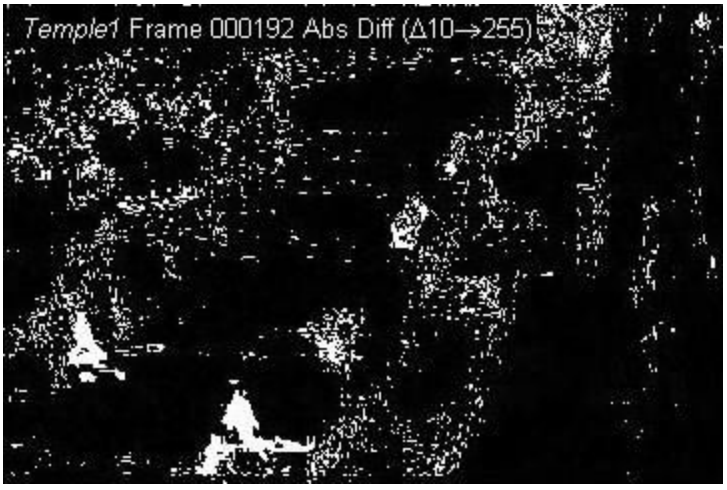
After Thresholding



Deliverables

1- Matlab files containing the code for 1.1 and 1.2 a, 1.2 b as well as a file testing each module you created. **(30 Marks)**
2- A report containing the following: **(20 Marks)**

- Description for each module.
- Testing each of the 3 modules on the sample dataset on the MET website in this link: Using different thresholds at least 4 different thresholds where you show the input images as well as the output image/s for each threshold. For Exercise 1.2, you should use different values of the number of frames(n).
- Testing each of the 3 modules on your own dataset (use any data set)
  Using different thresholds at least 4 different thresholds where you show the input images as well as the output image/s for each threshold. For Exercise 1.2, you should use different values of the number of frames(n).
- Compare the results between different thresholds for each technique as well as comparing the results of the 3 techniques after finding the best threshold for each. Explain why you have chosen this threshold for each technique and each dataset.

Submission Guidelines

Regulation:

1. You Should work in groups of 2 or individually.
2. The Deadline is on Monday 15/10/2018 11:59 pm

Submission:

1. The SUBMISSION EMAIL is dmet902.w18@gmail.com
2. The Subject of the Email is Assignment1_T[xx]_[id] Ex. : Assignment1_T1_40-1234
3. The submission email should contain one zip file:
4. The zip file should be named as: Assignment1_T[xx]_[id] Ex.: Assignment1_T1_40-1234

a. Source Code (Document your code using comments)
b. PDF Report. The report should contain a brief summary of the code steps. In addition include all results and screenshots stated in the steps.

Grading:

1. The total marks for this assignment 50 marks
2. Suspected cheating cases will be graded as ZERO
3. Late submission:

a. From 12 am till 8 am, 75% will be counted
b. One week later, 50% will be counted
c. More than one week later, 25% will be counted