CS5190 Spring 2022 – Assignment 4

Total points: 20

Due date: Monday, May 16, 2022

(20 pts) Task: Optical Flow

On Canvas, under " Lecture12- Optical Flow" in the "Modules" area, a python program named **"12a - Lucas-Kanade Method.ipynb"** is provided to estimate sparse optical flows of moving objects in a video "vtest.avi". The "vtest.avi" is available in the folder of assignment 4.

However, one issue with that python program is that the output video has many "still" corner points that are not on moving objects. Figure 1 shows some examples of the "still" corners (as highlighted using red regions). In this task, please **revise** that python program by **removing most of the corners that have negligible small motions**. Figure 2 shows a frame example of expected video.

Figure 1: Output of "12a - Lucas-Kanade Method.ipynb" , which includes "still" corners that are not on the moving objects

Figure 2: Expected video after removing the "still" corners that are not on the moving objects

What to Submit?

1. Python source codes **in ".ipynb" format**. Please note that
    a. don't use .py format
    b. use **relative file paths** to load (save) images from (to) disk.
    c. comment some important code lines,
2. Please DO NOT include input or output videos in your submission. I will use your program and vtest.avi to generate the output video.
3. Please zip the **source codes only** as yourname_assignment4.zip and submit it to Canvas.