CAP 6415: Computer Vision
Assignment 2
Due Date: 01/31/2019 11:59 pm
Submission Type: Upload onto Canvas

Problem Statement: Feature tracker Instead of finding feature points independently in multiple images and then matching them, find features in the first image of a video or image sequence and then re-locate the corresponding points in the next frames using either search and gradient descent (Shi and Tomasi 1994) or learned feature detectors (Lepetit, Pilet, and Fua 2006; Fossati, Dimitrijevic, Lepetit et al. 2007). When the number of tracked points drops below a threshold or new regions in the image become visible, find additional points to track.

(Optional) Winnow out incorrect matches by estimating a homography (6.19–6.23) or fundamental matrix (Section 7.2.1).

(Optional) Refine the accuracy of your matches using the iterative registration algorithm described in Section 8.2 and Exercise 8.2.

Submission Requirements:
Please upload a ZIP file containing the following files:

1. All your code files, including any helper files/dependencies.
2. A README file detailing how to run your code along with any compilation instructions.
3. A 2-Page technical report containing the following sections:
4. A short description of the algorithm
5. A description of any code/algorithms that were used/re-used by you for your implementation.
6. A few examples of results from your implementations, comparison with the original implementation (if needed).
7. A general discussion of lessons learned based on your experiments with the algorithm. E.g. What did you struggle with, issues faced while implementing the code, scopes for and/or proposed improvements, etc.

Your code will be tested on different test inputs and graded based on the progress of your approach on these test inputs. A demo session will be scheduled for evaluating your implementation.

Please ensure code is in C/C++, Python, or Matlab. Solutions have to be self-sufficient and not dependent on other computer vision code, such OpenCV or Matlab vision package, other than for reading, writing or displaying images.