ENPM 673, Robotics Perception
Homework: Optical Flow Estimation
Due on: Thursday May 3, 2018

For this project, you will compute and compare optical flow on some sequences of the Middlebury Optical Flow dataset. You are to implement the Lucas-Kanade optical flow algorithm. The details are on the Wikipedia page.

[Part 1] 30 pts
Your algorithm will be validated on the Middlebury grayscale dataset, which you can find here. Each of these dataset items contains 8 frames of motion. Test your implementation of the Lucas Kanade algorithm on the **Grove** and **Wooden** sets. Make quiver plots for your optical flow computations. Store these frames as a video file called Grove_LK and Wooden_LK, respectively.
Upload the code, a representative quiver plot from each sequence and the videos.

[Part 2] 30pts
After this, you compare your output with inbuilt MATLAB implementations of Lucas-Kanade, Farneback and Horn-Schunck. Evaluate them on the same dataset mentioned in Part 1, and write a report comparing how the different methods behave in textured regions, non-textured regions, and at object boundaries.