Computer Vision I

EXTRA CREDIT PROJECT (Individual, Optional)
November 19, 2018

Due on December 12, 2018

STEREO

1. Consider the following stereo pairs:

Figure 1: Stereo Pairs

2. Find interesting features and correspondences between the left and right images. You can use the CORNERS and NCC algorithms that you wrote/used for the second project or SIFT features and descriptors. Display your results in the same way you did for project 2 i.e. by connecting corresponding features with a line. Using lines of different colors for different points makes it easier to visualize the results.

3. Write a program to estimate the *Fundamental Matrix* for each pair using the correspondences above and RANSAC to eliminate outliers. Display the inlier correspondences in the same way as above.

4. Compute a **dense disparity map** using the Fundamental matrix to help reduce the search space. The output should be three images, one image with the vertical disparity component, and another image with the horizontal disparity component, and a third image representing the disparity vector using color (similar to what you use for optical flow display). For gray scale display, scale the disparity values so the lowest disparity is 0 and the highest disparity is 255.

5. Write a report.