The purpose of this homework is to implement in C the Harris corner detector and the normalized cross correlation (NCC) based matching that will be used in the next homework. You are free to look at the MATLAB implementations of both the corner detector and NCC at


Here are the specific steps your homework must implement:

First you must take two pictures of the same scene with your personal camera. The second picture is of the same scene as the first picture except that the camera is rotated through a small angle. For example, see Figure 4.9 (a) and (b) in the textbook.

Then you apply the Harris corner detector to both images to extract two set of corner points. For example, see Figure 4.9 (c) and (d) in the textbook.

Finally, you compute putative correspondences between the set of extracted corners in the first image and the ones in the second image by comparing image neighborhoods around the corner points. (For each corner point in each image, specify a search neighborhood in the other image.) The similarity between the image neighborhoods is measured by using normalized cross correlation (NCC) whose value is always in the range -1 to 1. The value of 1 means that the two neighborhoods are identical.

Show putative correspondences between the corner points by drawing lines connecting the corresponding corners in the two images. If you wish you can use the function “cvLine” from the Intel OpenCV library for drawing these straight lines.