

CMPT 412 Assignment 2

The BRIEF descriptor is applied to rotated images, as shown in Figures 1-3 below. BRIEF computes the descriptor by comparing the pixel intensities. Since pixel intensities are not rotationally invariant, we do not expect BRIEF descriptors to work well on rotated images.

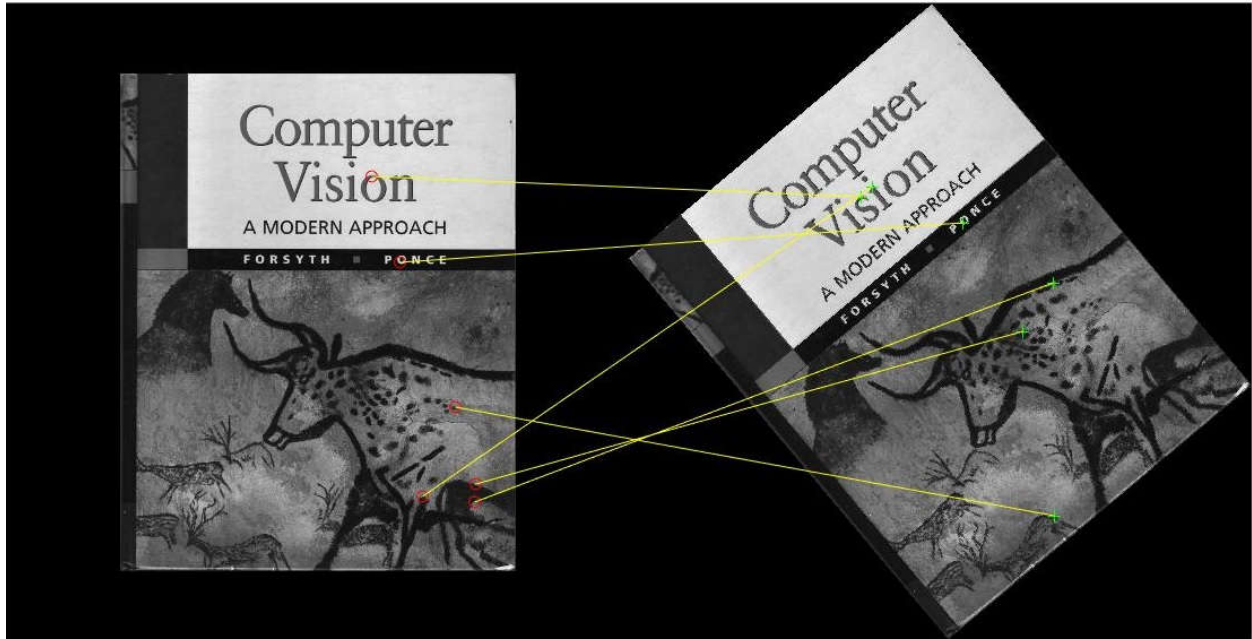


Figure 1

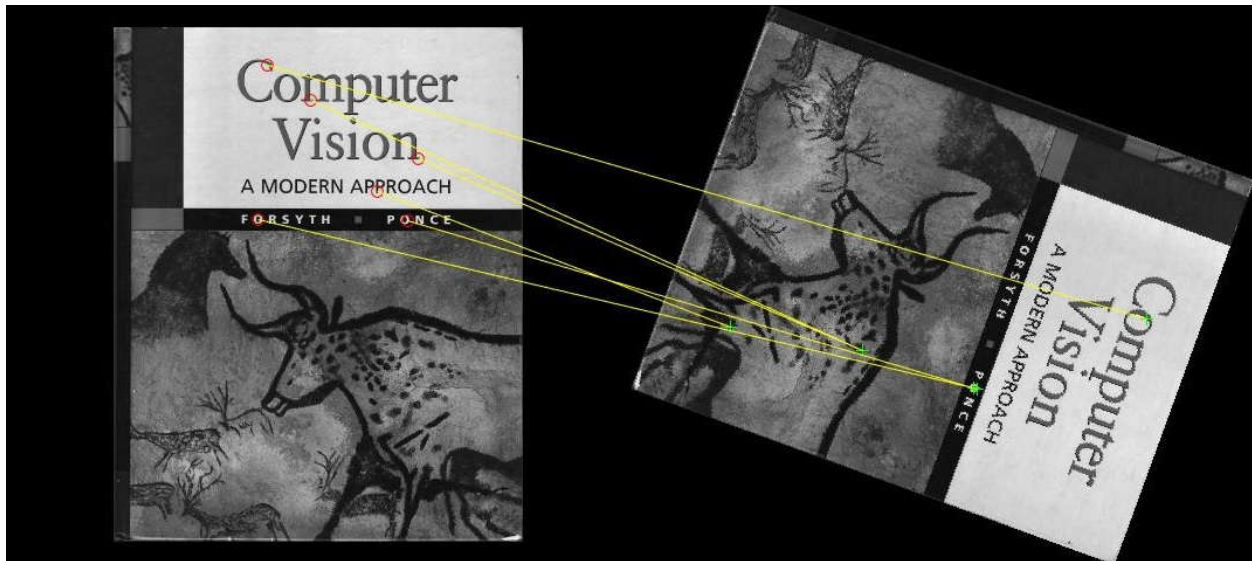


Figure 2

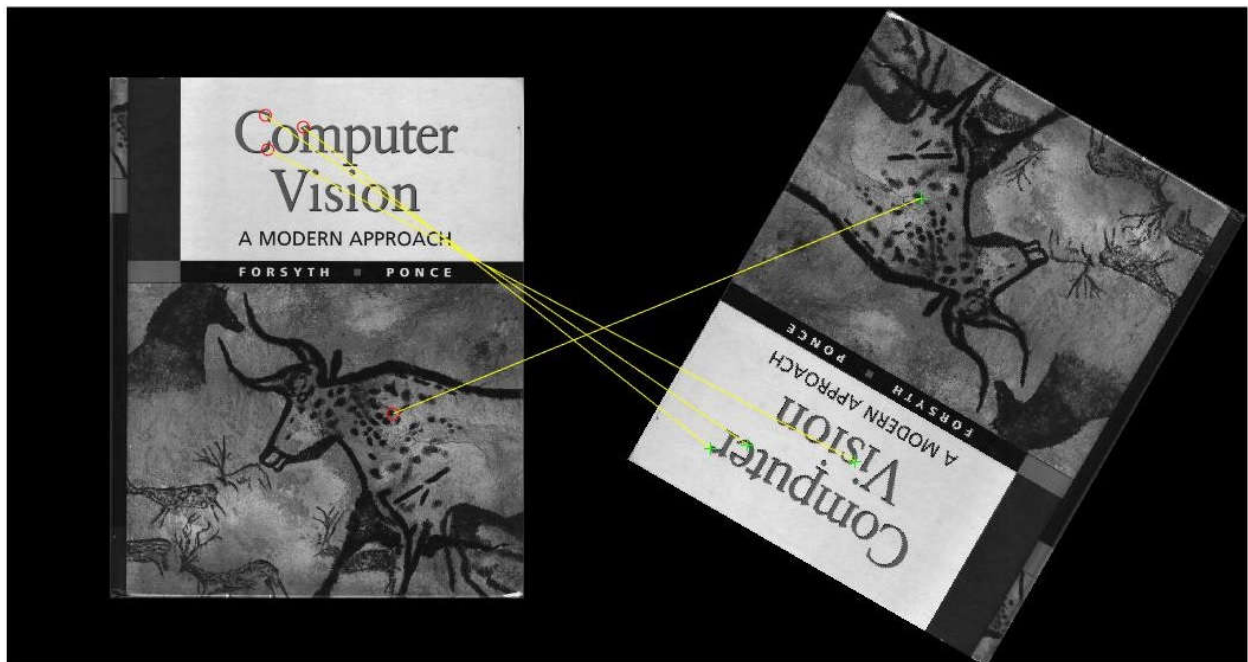


Figure 3

The results for the SURF feature detector are shown in Figures 4-6. The SURF detector does not appear to be more accurate than BRIEF.

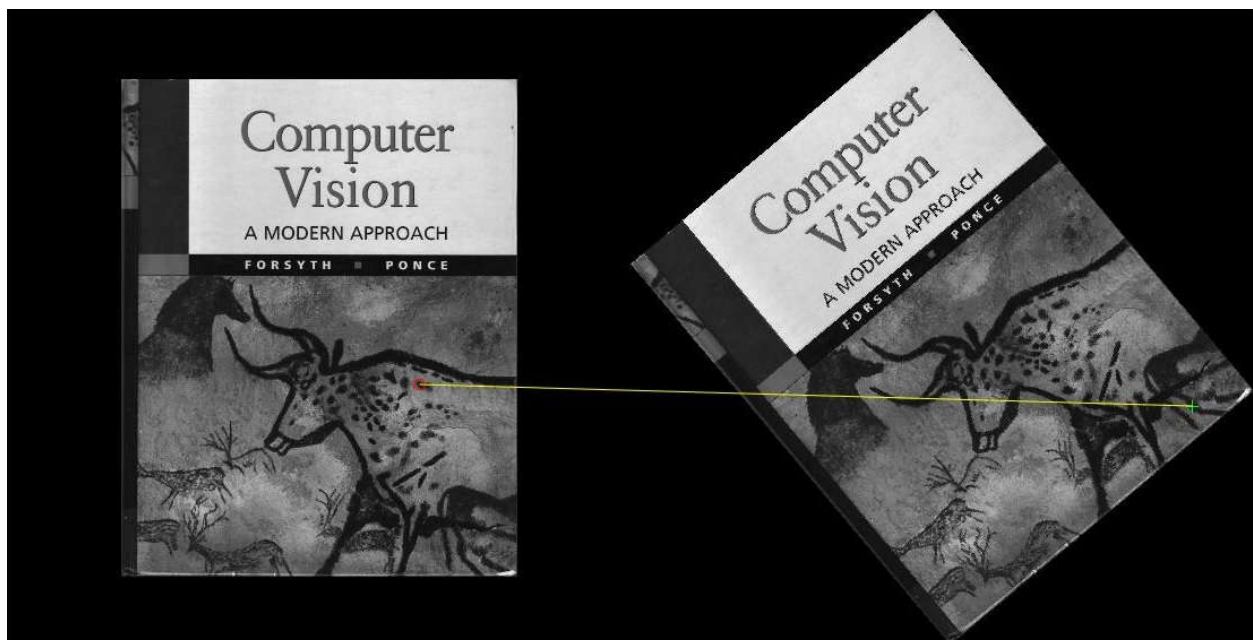


Figure 4

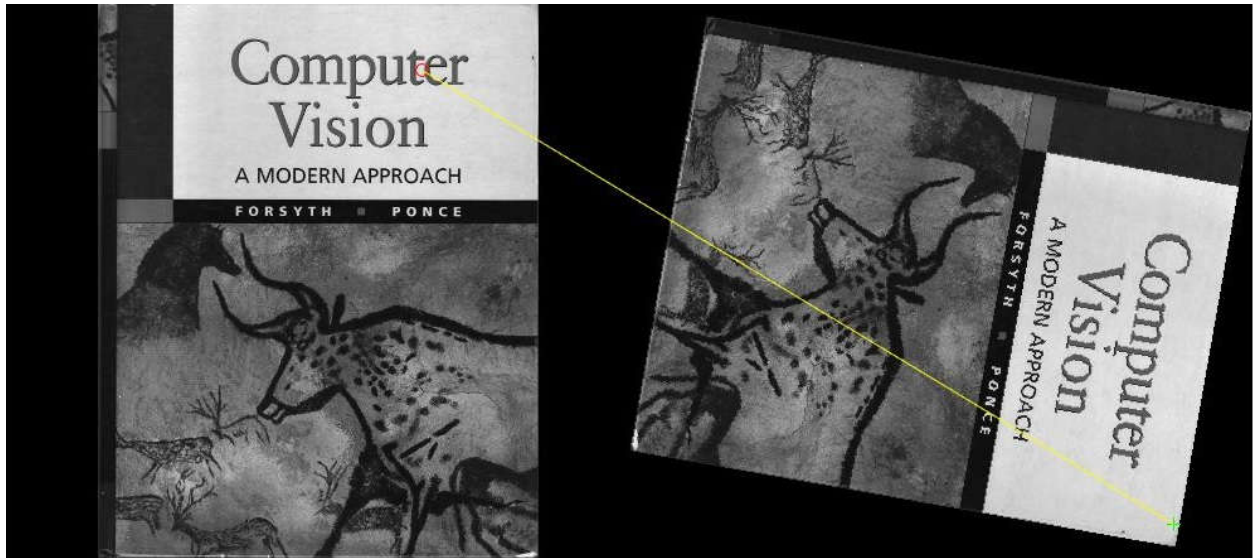


Figure 5

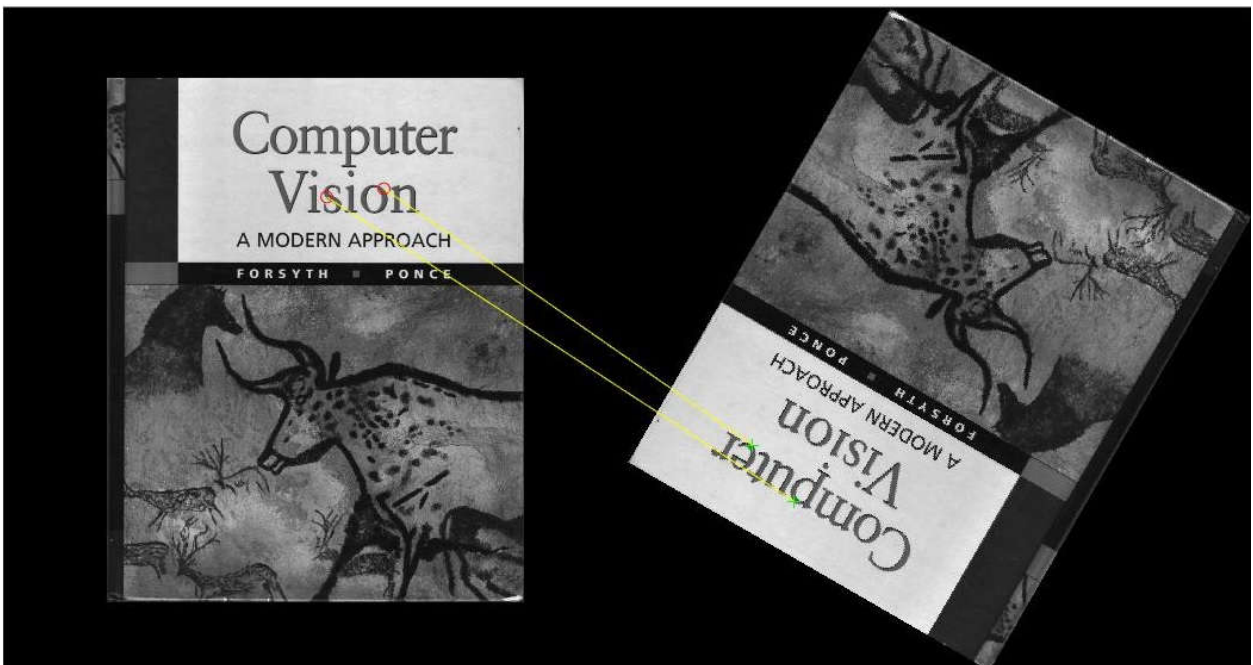


Figure 6

The result of the homography computation for 10 different points are shown in Figure 7. A maxRatio value of 0.6 is used for matchFeatures .

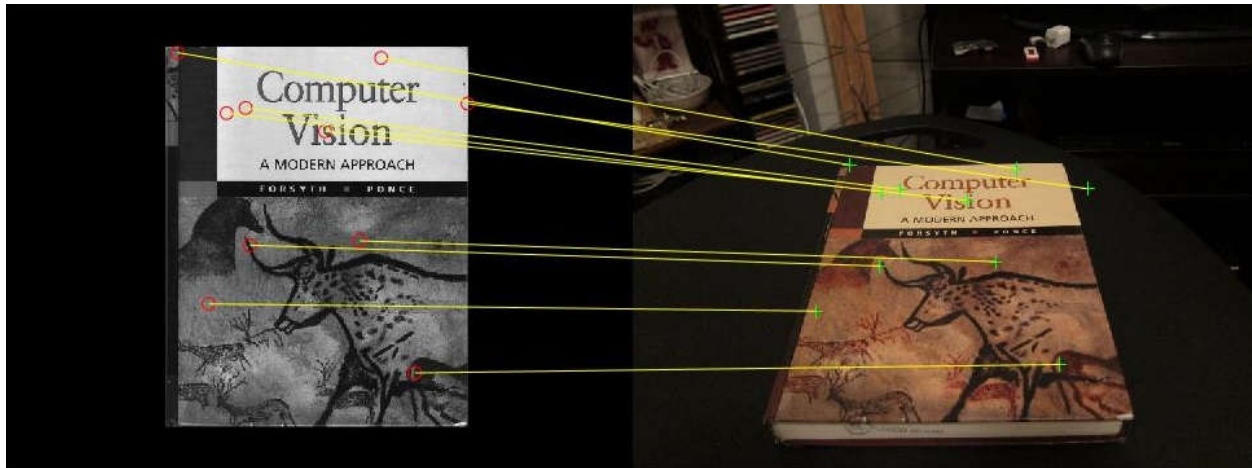


Figure 7

The result of the normalized homography computation for 10 different points are shown in Figure 8. Again, a maxRatio value of 0.6 is used for matchFeatures .

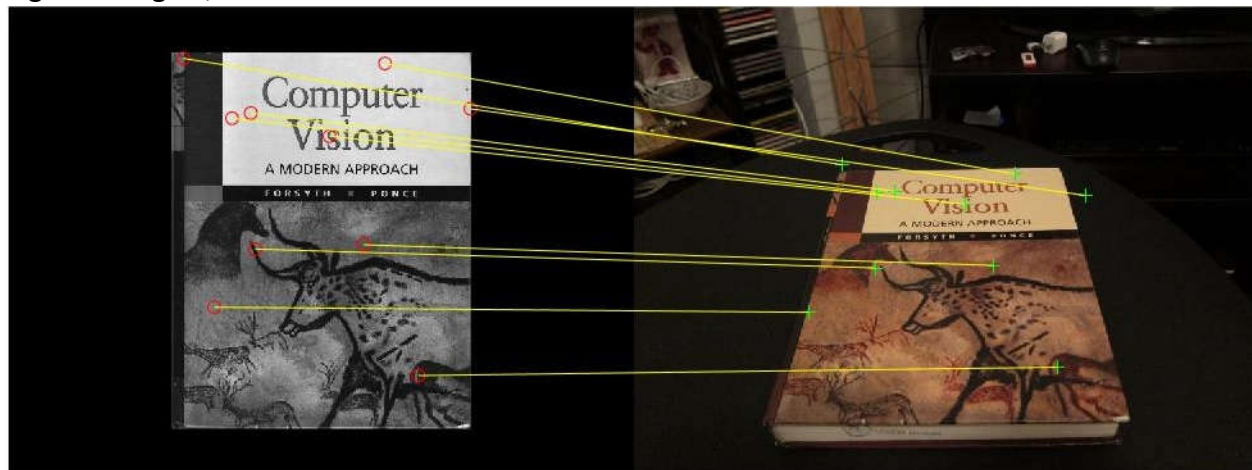


Figure 8

The best result of using RANSAC is shown in Figure 9 with the inlier matches. A maxRatio of 0.8 is used for `matchFeatures`.

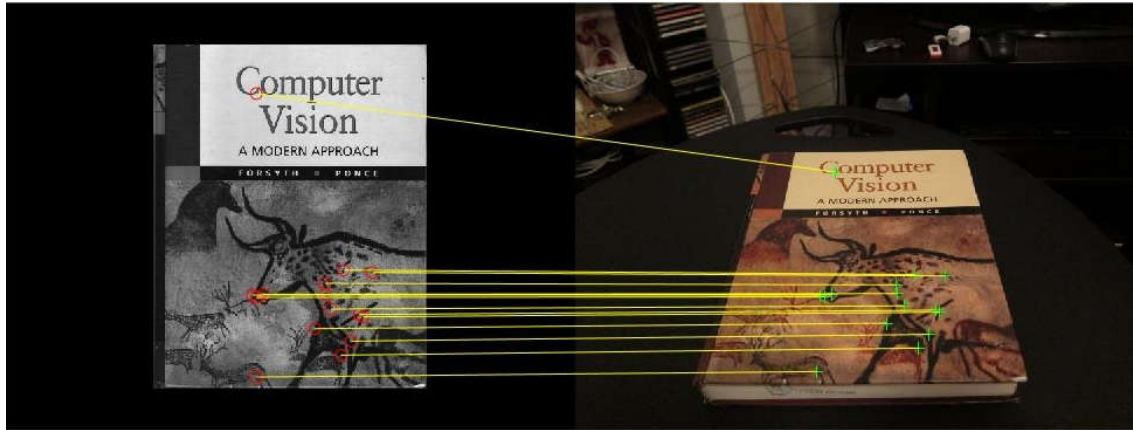


Figure 9

Using the above RANSAC algorithm, the harry potter image is overlaid onto the desk image. The result is shown in Figure 10.

