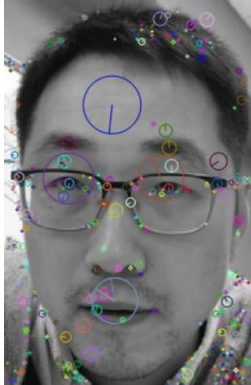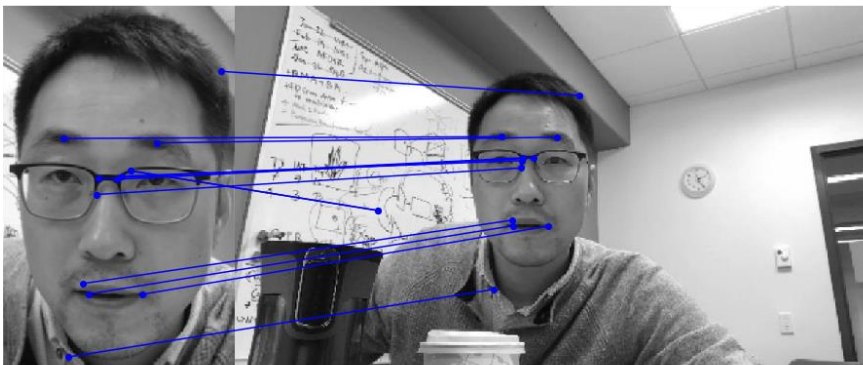Summary

Nanxun Huang
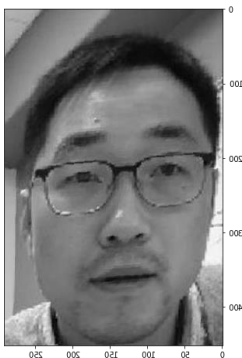
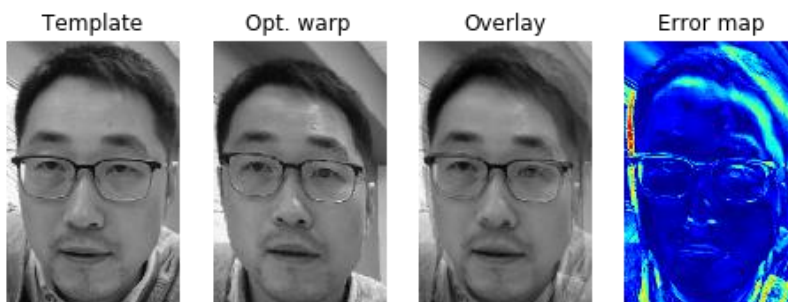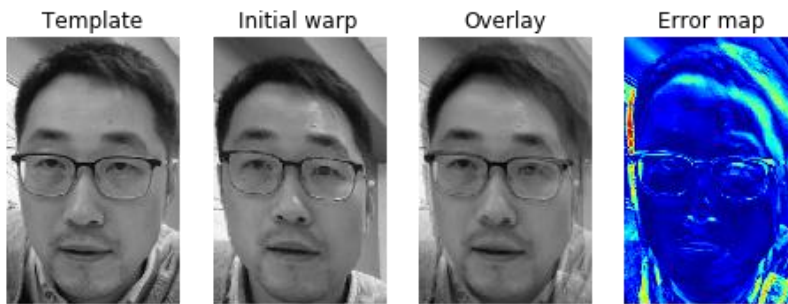The Sift Feature Extraction will give SIFT features, for example, the template has the SIFT:

The find_match function will give the pairs of points via Kneighbors algorithm with a tolerate ratio rate (default 0.8).

The align_image_using_feature will give the matches via RANSAC with random.seed 5561 and default tolerate Euclidean distance ransac_thr = 10 and max iteration time ransac_iter = 1000. The it will give a matrix A to warp the image, this is the figure warped from the right image to the left.

The Inverse Compositional Image Alignment help refine the transformation and the error between the template and the transformed image is decreased.

Template   Initial warp   Overlay   Error map

Template   Opt. warp   Overlay   Error map

The track_multi_frames use template to find corresponding in frame 1, use the detected frame to find corresponding in frame 2, etc. Thus, is will keep track on the template.

Frame 1

Frame 2

Frame 3

Frame 4