

CMPUT 615 LAB 1.2 Final Report

- The translational tracker performs pretty well but it is a bit slow. I am considering the whole template and computing gradients for all the pixels. The performance might be improved by sampling random points on the template and tracking them instead of considering all the pixels.
- If the object moves too fast, the tracker loses the object. We are assuming the object does not go too far in consecutive frames. I still have to look into how to solve this issue.
- If the object rotates or changes the angle, the tracker loses the object. We might use 3d tracking instead of 2d tracking to preserve rotation information.
- If the object moves towards or away from the camera the tracker sometimes loses the object. That's because the tracker is tracking a fixed size window selected by the user. If the size of the object changes, it might be too small or too large from the window. Once again 3d tracking might solve this issue.
- If the region selected by the user is too small, the tracker fails to track.
- The tracker assumes the object being tracked will always be directly in front of the camera, so if any other object comes in front the tracker loses the object.
- If we use affine wrap, it preserves scaling, rotation and translation. So even if the objects rotates or comes towards or goes away from the camera, theoretically we should still be able to track the object. Affine wrap also preserves parallel lines.



Figure 1 Translational x y tracker

Our pyramid tracker performs the best when we choose 3 levels with .5 scale down on each level.

It might not always exactly follow the object, but it keeps track off the motion.

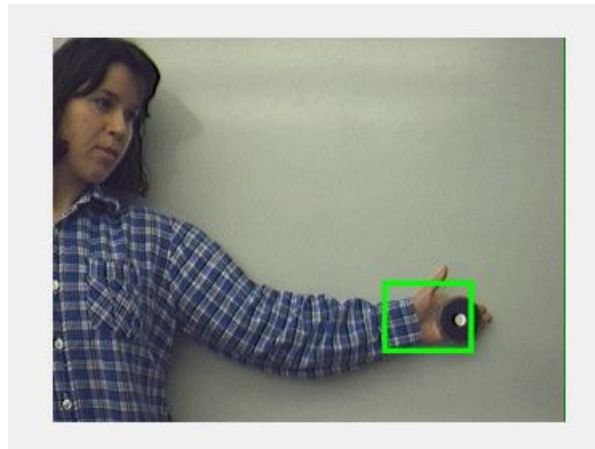


Figure 2 Translational tracker with gaussian pyramid

Our affine tracker performs the best since it considers scale and rotation of motion. It keeps track of the region perfectly and changes accordingly.



Figure 3 Object tracking with affine wrap