Result of testing RANSAC approach for wheel detection

June 23, 2015

Parameters of the wheel: center coordinates $(x_0, y_0) = (261, 1325)$, radius $R = 1079$. We consider velocity of the points inside the region $(x - x_0)^2 + (y - y_0)^2 = r$ with $r = [R - 5, R + 5]$.
Settings of the optical flow:
$alpha = 0.012$; $ratio = 0.85$; $minWidth = 20$;
$nOuterFPIterations = 3$; $nInnerFPIterations = 1$; $nSORIterations = 20$;

No motion

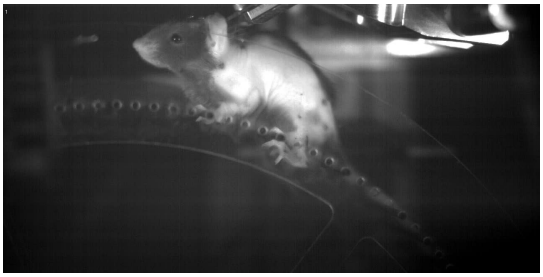

Figure 1: Frame 1

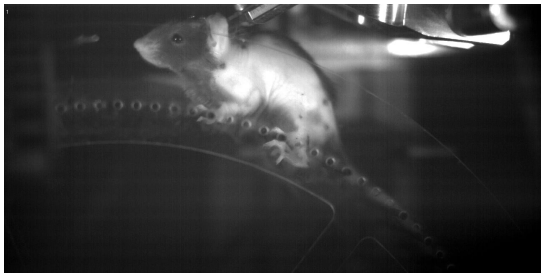

Figure 2: Frame 2

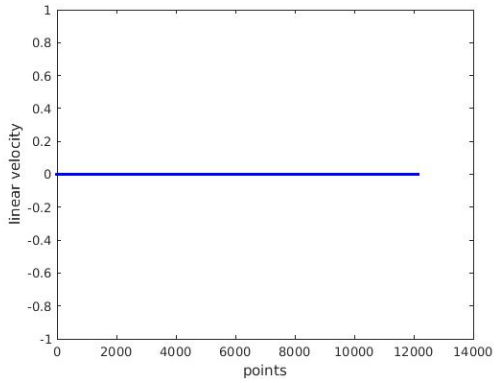

Figure 3: One iteration approach, $\theta = -0.009$

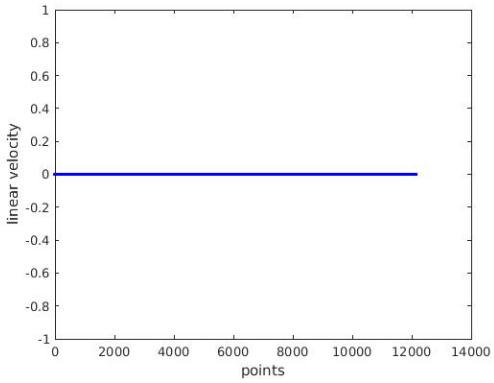

Figure 4: Greedy Approach, $\theta = -0.007$

Motion to the left

Figure 5: Frame 1

Figure 6: Frame 2

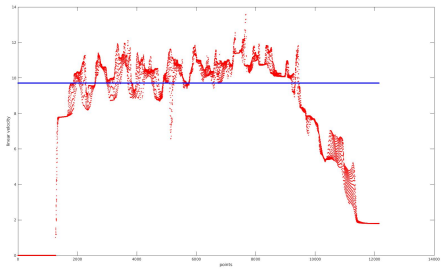

Figure 7: One iteration approach, $\theta = -0.009$

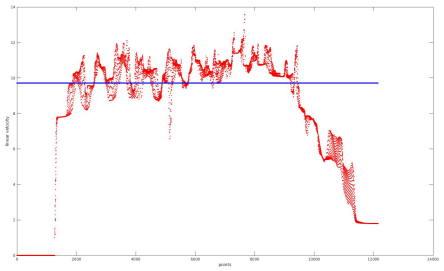

Figure 8: Greedy Approach, $\theta = -0.009$

Motion to the right

Figure 9: Frame 1

Figure 10: Frame 2

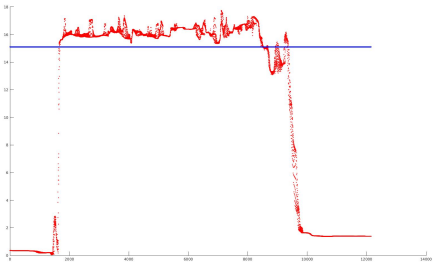

Figure 11: One iteration approach, $\theta = 0.014$

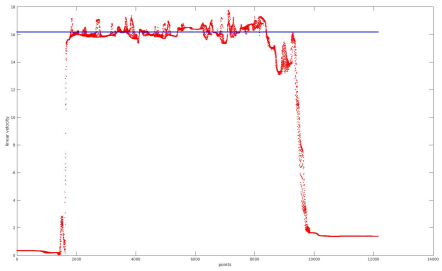

Figure 12: Greedy Approach, $\theta = 0.015$