

Jacob Fund  
903138567



Figure 1 ps6-1-a-1.png

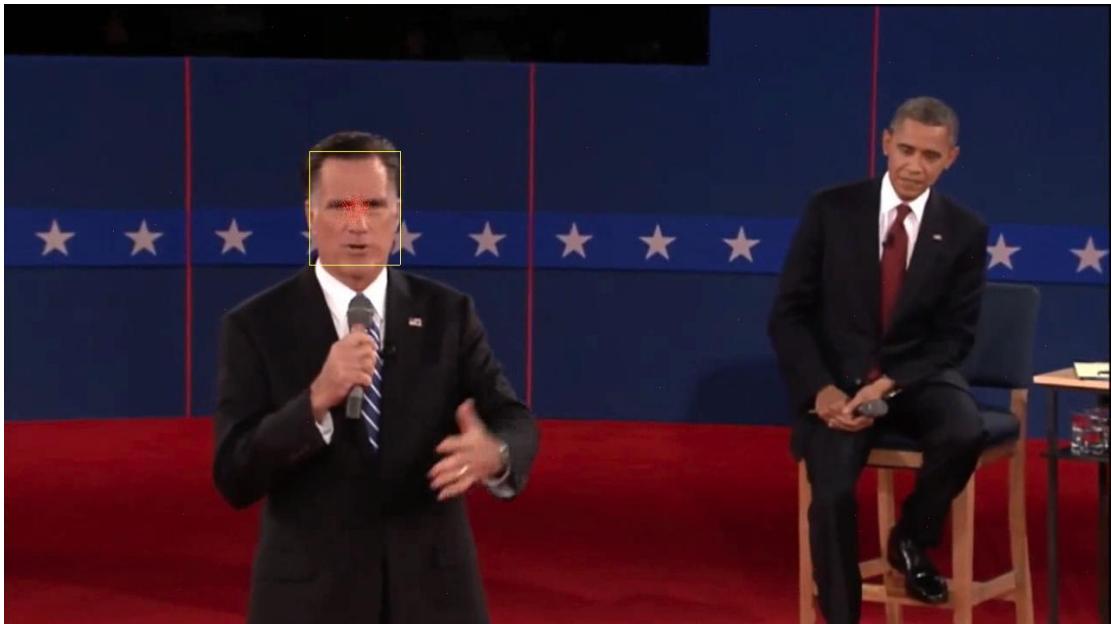


Figure 2 ps6-1-a-2.png



Figure 3 ps6-1-a-3.png



Figure 4 ps6-1-a-4.png

1b text response: bigger tracking boxes tended to stabilize to a single particle better( this was only apparent when it was extended around his white shirt and tie, adding more of the background didn't seem to be very stabilized.) Bigger boxes need less particles. Smaller boxes are faster, and more accurate when fast and altering movements were made.

1c. text response: Making the sigma bigger (20) gave similar results that seem to work fine, if I made them smaller than 5 the algorithm did not do so well. By making the sigma larger it gives outliers less weight since it's the main variable that normalizes the weights. Therefore, on the contrary, making smaller sigmas give outliers a higher weight.

1d. -100 particles

Takes a little longer to converge to his face when the number of particles is lower, but the algorithm is much faster and seems to be just as good once it converges.

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Figure 5 ps6-1-e-1.png

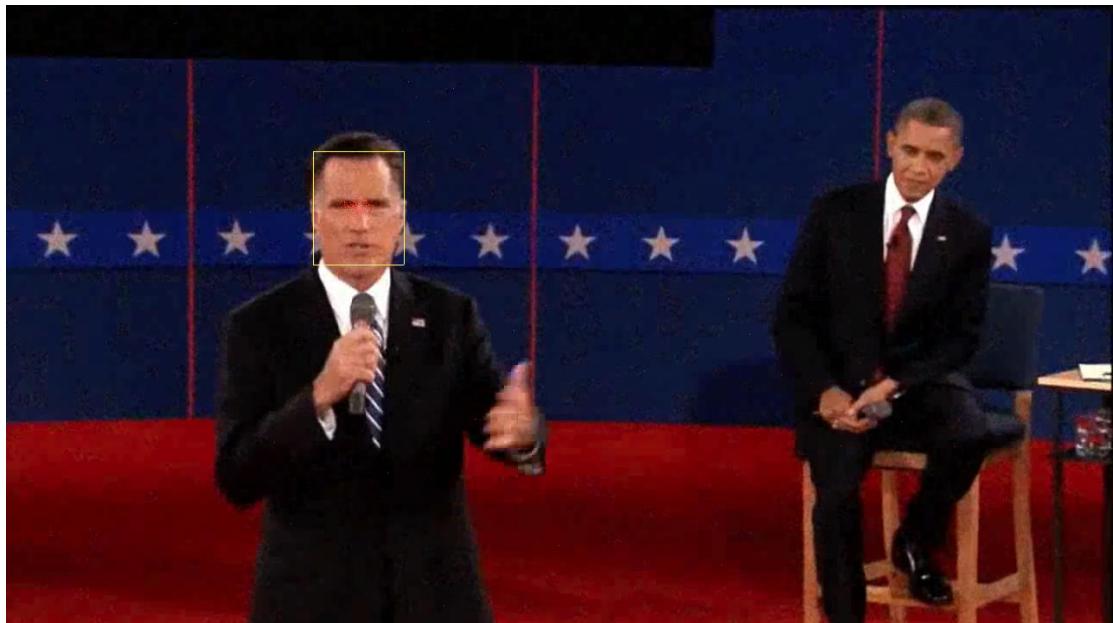


Figure 6 ps6-1-e-2.png

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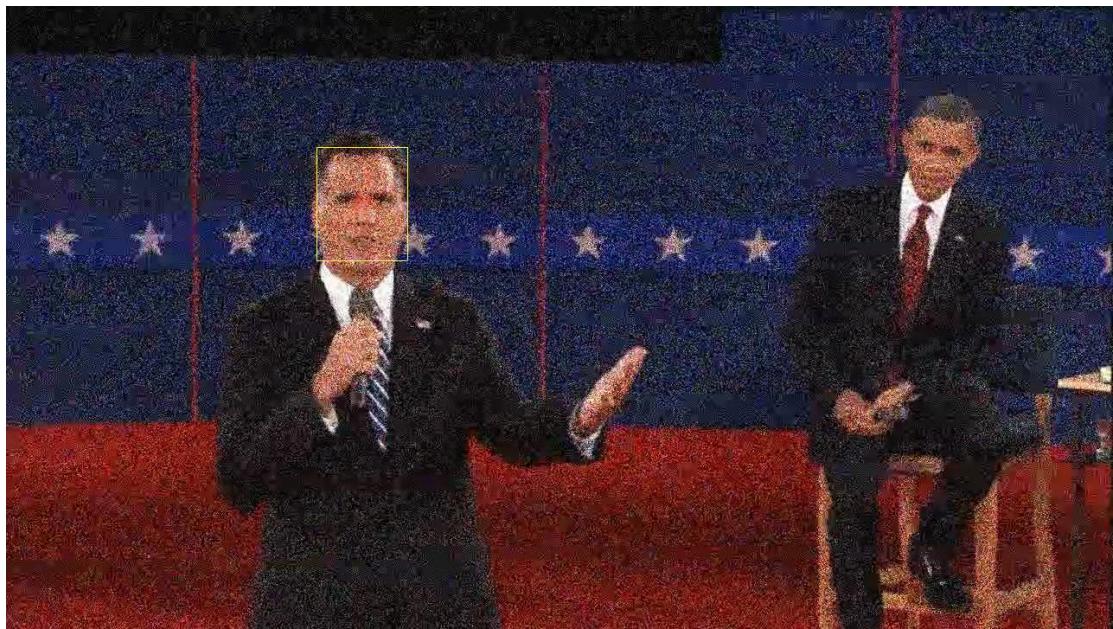


Figure 7 ps6-1-e-3.png

1e text response – no optimization was needed to get good results on the noisy version of the video.



Figure 8 ps6-2-a-1.png



Figure 9 ps6-2-a-3.png

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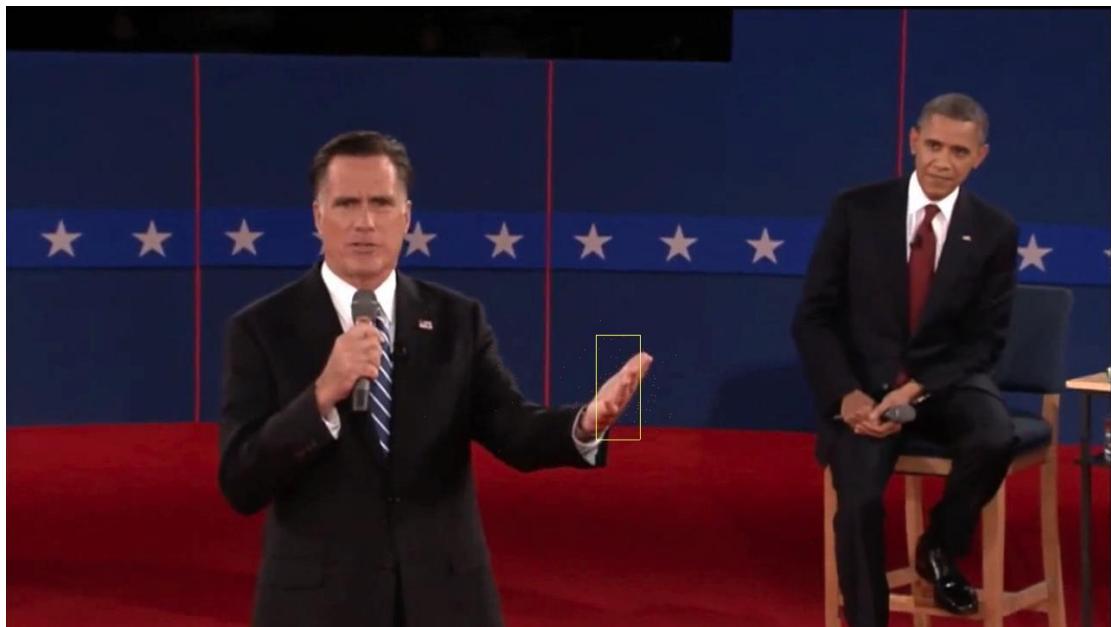


Figure 10 ps6-2-a-4.png



Figure 11 ps6-2-b-1.png



Figure 12 ps6-2-b-2.png

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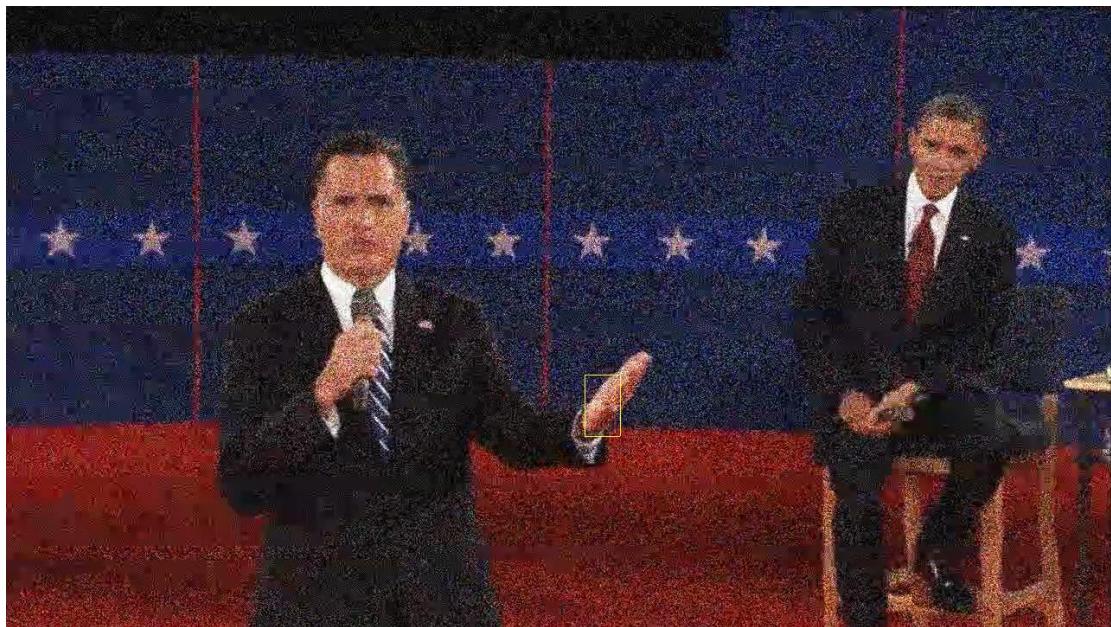


Figure 13 ps6-2-b-3.png



Figure 14 ps6-2-b-4.png

2b text response: many factors had to be altered in order to get the algorithm to work without the noise, but with the noise, the distribution of the particles was centered around the hand patch of the first frame. Changing the weight-alpha for the combination of previous patch and the new best patch did not seem to alter the results much. Maybe my code was faulty. As it appears, a smaller rectangle was used for the patch. Noise distribution had to be lowered, and particle size had to be increased.