Fast Parallel Object Tracking: Checkpoint

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1 Updated Schedule

- Week of 4/9: design allocation of workload and overall structure - completed
- Week of 4/16: implement two weak classifiers - completed one weak classifier
- 1/2 Week of 4/23 (edited): complete the other weak classifier
- 2/2 Week of 4/23 (new): implement selectors
- 1/2 Week of 4/30 (edited): implement strong classifier, finish implementation of the object tracker
- 2/2 Week of 4/30 (new): begin running tests on GHC machines
- Week of 5/7: finish tuning of performance and accuracy, comparisons against OpenCV

2 Work so far

I have been able to design the general structures that will be necessary to continue implementing object tracker. This includes dividing up the parallel workload and laying out the work across the CUDA programming hierarchy. In addition, this creates a pipeline for the incoming images and the training of the weak classifiers. I have been able to implement the Haar-like feature detector/classifier that can classify and train on samples. This process required the computation of integral images which has also been implemented.

3 Goals and Deliverables

Although I am slightly behind schedule in not completing the second selector, the planning I have done will speed up the remaining work I will have to do. Thus, I plan on having a working object tracker at the end of this project. It
is hoped/planned that this tracking will be (reasonably) accurate and robust. Further, I will aim for processing in realtime as planned in the proposal. At the competition, I hope to be able to demonstrate video in which an object has been tracked. Tracking videos that others can submit may be possible given good performance and proper setup.

4 Potential Issues

The main issue will be getting into it and doing the work. There are no pressing, forseeable problems at this point.