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Rapid Object Detection using a Boosted Cascade of Simple Features by Viola et al. describes a technique for object detection that works by using less process intensive algorithms to narrow down feature windows to critical areas using integral images before using more complex and expensive algorithms with higher accuracy. As a result, their algorithm substantially cuts down the amount of computation time needed in their tests which focus on detecting front facing human faces in an image. Researchers found that the forementioned method yielded detection rates parallel to best previous systems but was able to execute the algorithm much faster.

For the initial filtering process, researchers were able to train different classifiers using a model which limits the classifier to a single feature and used them as a voting system where the overlap of results was able to increase the model's accuracy further than the best of the group. The filtering steps will continue to add stages until false positive and detection thresholds are met. Results revealed a detection rate of 95% using 68 stages and over 6000 features. This proves to be 15 times faster than the detection system referenced by Rowley et al, the fastest algorithm to date.