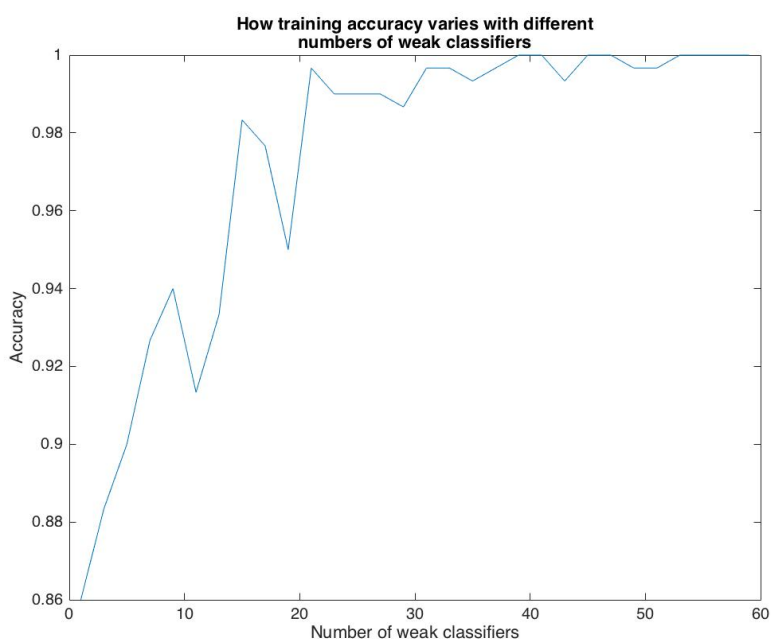


Boosting

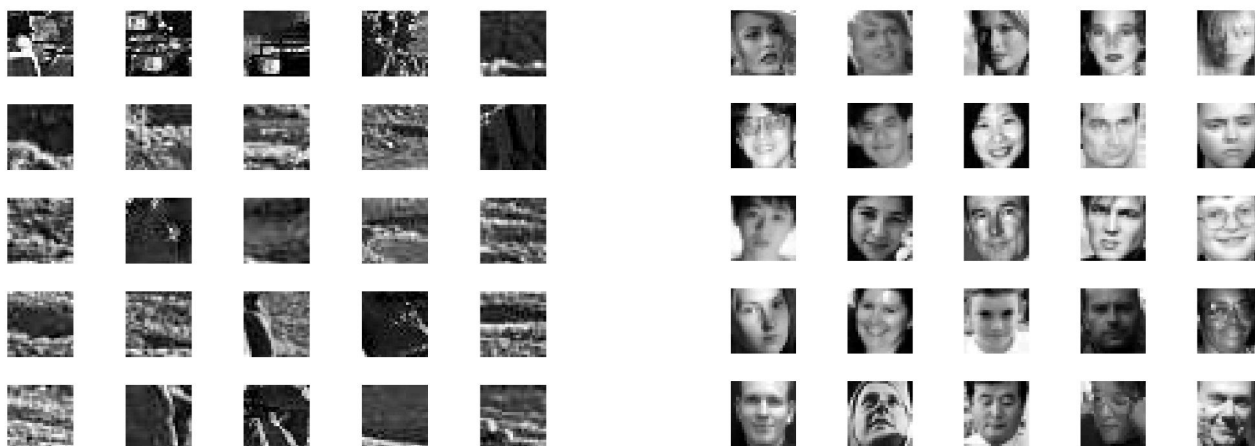
How training accuracy varies with amount of weak classifiers

To plot how the training accuracy varies with different number of weak classifiers we set a range from 1 to 60 with a step length of 2 and iterated through that range setting the number of weak classifiers to the current value in the iteration loop. After having trained the ensemble of weak classifiers we test the configuration on the training data and saved the accuracy that the configuration received. This is done for each number of weak classifiers in the above mentioned range and after having iterated through the whole range we plotted the results in the graph visible below. We used 40 Haar

features for this process and 300 training samples. Finally we tested the model using 60 weak classifiers on the test data and this resulted in an accuracy of 86%. The training set contained equal amounts of faces and non-faces. The test set we used contained 3000 samples with equal amounts of faces and non-faces.



Some misclassified samples



Summary

We have explored using different amounts of features and number of weak classifiers and have gotten accuracies ranging from 80% to over 90%. Running the model using 200 Haar features and 100 weak classifiers resulted in a score of 92% for example. The fact that we got good results using only 10% of the total amount of data for training and the rest for testing is a good indication that the model generalizes well to unseen data. However, as faces come in a lot of different forms, and the rotation and scale in which they can occur in an image can vary greatly it seemed naive to us to think that we could build a model with accuracies close to 100%.