

TBMI26: A2

A report by

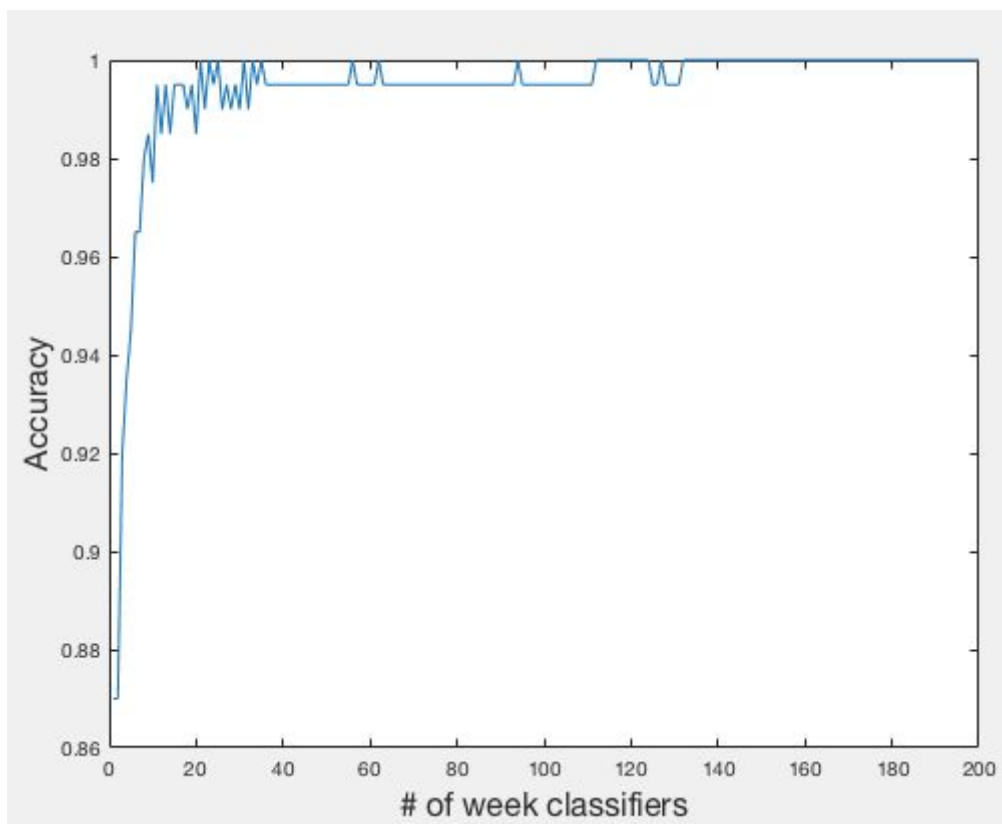
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Summary

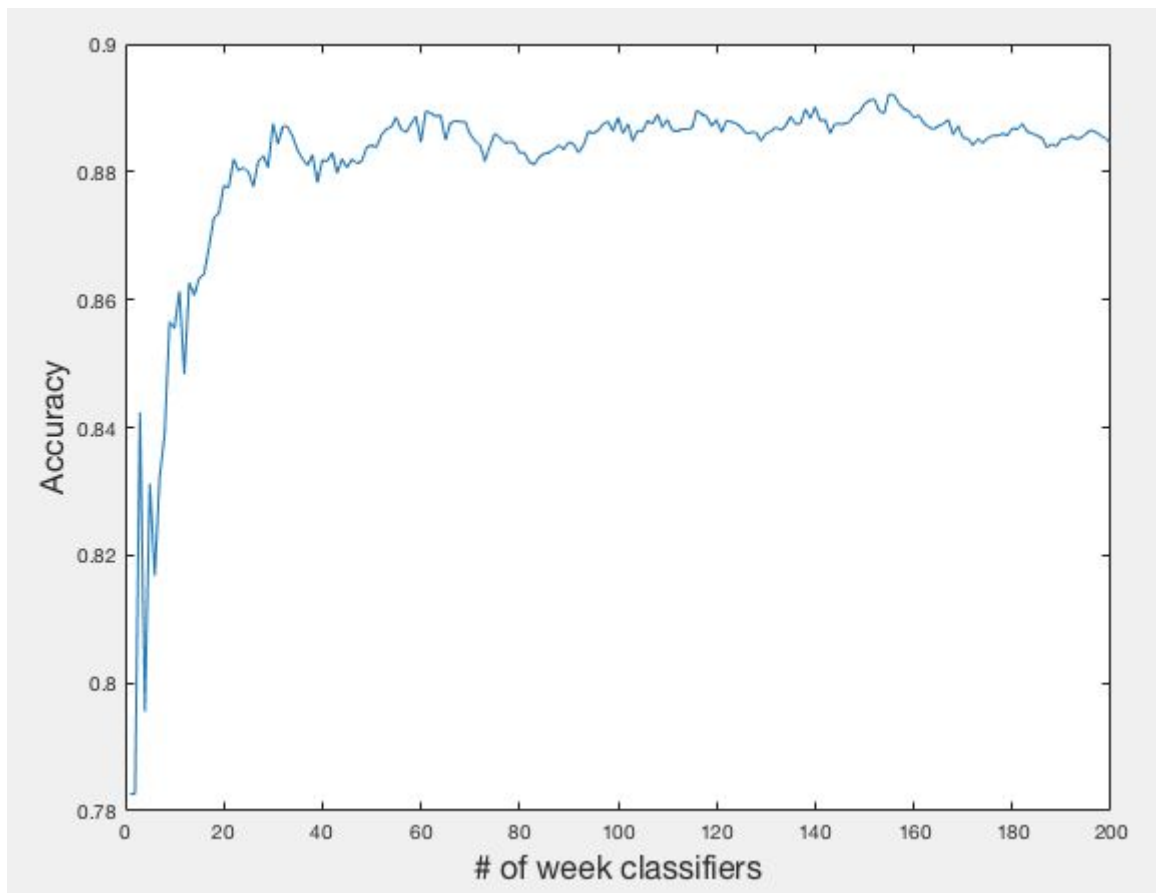
In this lab we implemented AdaBoost for face detection. Our strong classifier managed to get an accuracy of 89% using Haar-features to classify faces and non-faces. The pictures which we failed to classify had some more and some less obvious quirks.

Classification accuracy

The following plot shows the accuracy depending on the number of weak classifiers. For this example we used 100 non-faces and 100 faces as training data, 100 Haar-features and we decided to test up to 200 weak classifiers.



Train data



Test data

The accuracy of the best number of classifiers when using test data were 0.8922 at 155 number of classifiers.

Misclassification examples

These were our misclassified faces:



Looking at the faces, it is easy to understand why our classifier could struggle to classify them. There are caps, odd angles, sunglasses, glasses, hair covering face, grimaces and bad lighting at play. Several factors are ruining our classifier.

Now, looking at out non-faces which were misclassified:



These pictures does not make as much sense. Most likely, the Haar-features found something they triggered on at each picture. For instance, the most bottom-right picture has a white nose-like shape in the middle of the picture. Moreover, the picture above that picture looks like a abstract face with a black mouth and two eyes.

In the end, we cannot expect a perfect result. There are just too many cases for our classifier, which has only trained for 37 seconds using a very limited amount of training data.