Neurotech Homework 5

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What I did

First I loaded the face vs house data. Then I put the train data into a table and opened up the matlab classification learner tool. I used that tool to make a trained fine KNN, and shifted the parameters to achieve a high accuracy. Then, I exported the trained KNN. Through a lot of trial and error, I eventually managed to get the KNN to run on testing data. Once I did that, I checked the predictions against the actual labels, and plotted a confusion matrix of the true vs predicted class.

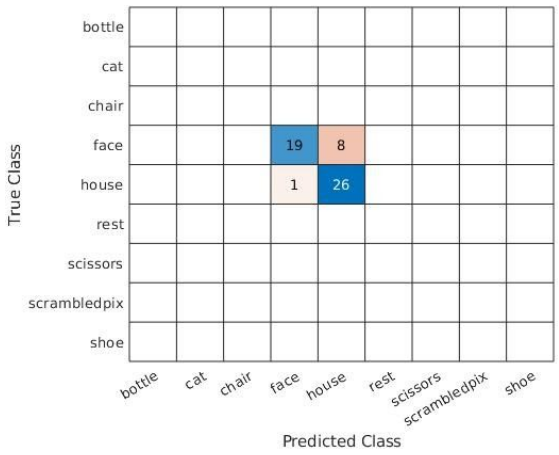

Figure 1: Confusion Matrix of houses and faces on test data

I ended up with an accuracy of 83% on my test data, which suggests that the model was overfitting, since the accuracy on the training data was around 98%.

What I learned

By using a more visual interface for machine learning in the first parts, I was able to get a much better sense of how the different models perform compared to each other on different sets of

data. I did not get to learn all the math or code behind the different approaches, but I thought that what I learned will be helpful in the future, so I will have a better sense of my options when selecting a model. I also looked up the meaning of the ROC curve and experimented with how it varied on different models with different parameters in parts c and d.