Lirane Bitton
Lirane
200024677

Computer Vision:
Matlab Assignment 2
Basic Object Recognition

Part1:
False Positive:

VIdN104.pgm

VIdN110.pgm
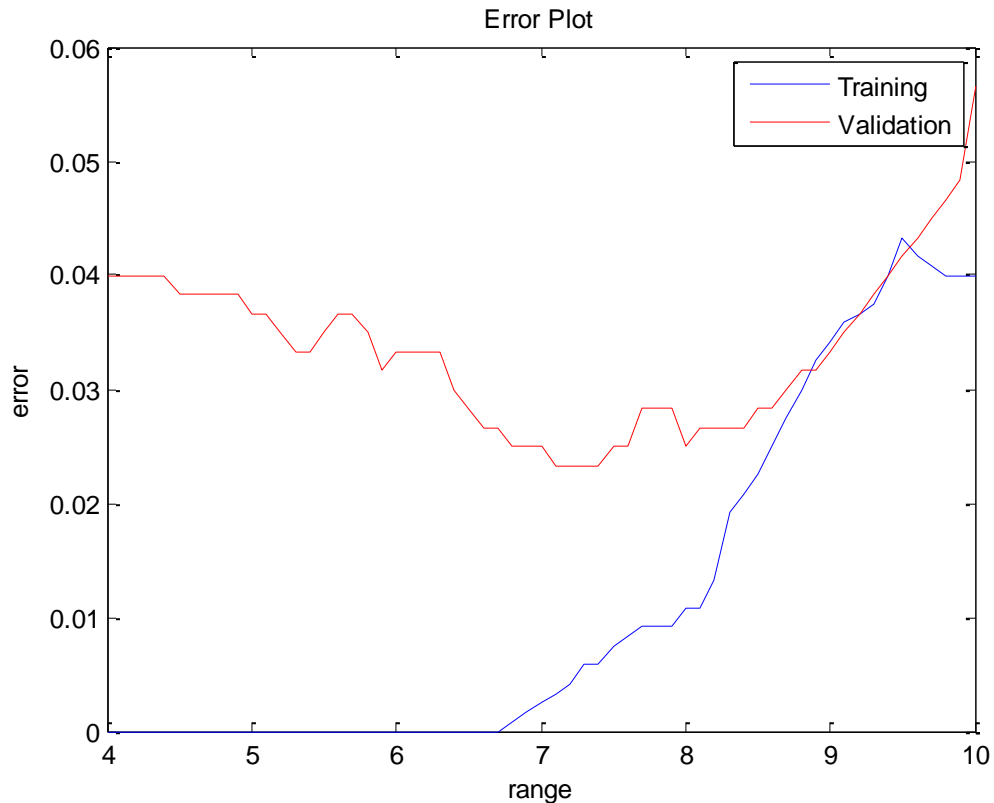

False Negative:

VIdP138.pgm

VIdP148.pgm

trainingError = 0, validationError = 0.0500

Part3:

Error Plot

From what we know, higher the lambda is smaller the w need to be in order to minimize our function lambda*|w|.

The training plot here doesn't give us enough information to pick the right lambda. While taking a look at the validation we can see that at 10^7 we got a minimum. Hence we can understand that before this point we probably had an overfit problem where the system learned the noises of the training set which raises the error rate. And in the other side, after that point the effect of w is less important thus the error rate grow up. Thus the minimum value in validation should be pick as our optimal lambda chosen here as 10^7.1.

False Positive:

VldN104.pgm

VldN11.pgm

False Negative:

VldP145.pgm VldP148.pgm

Minimum error: 0.0233

Part5:
False Positive:

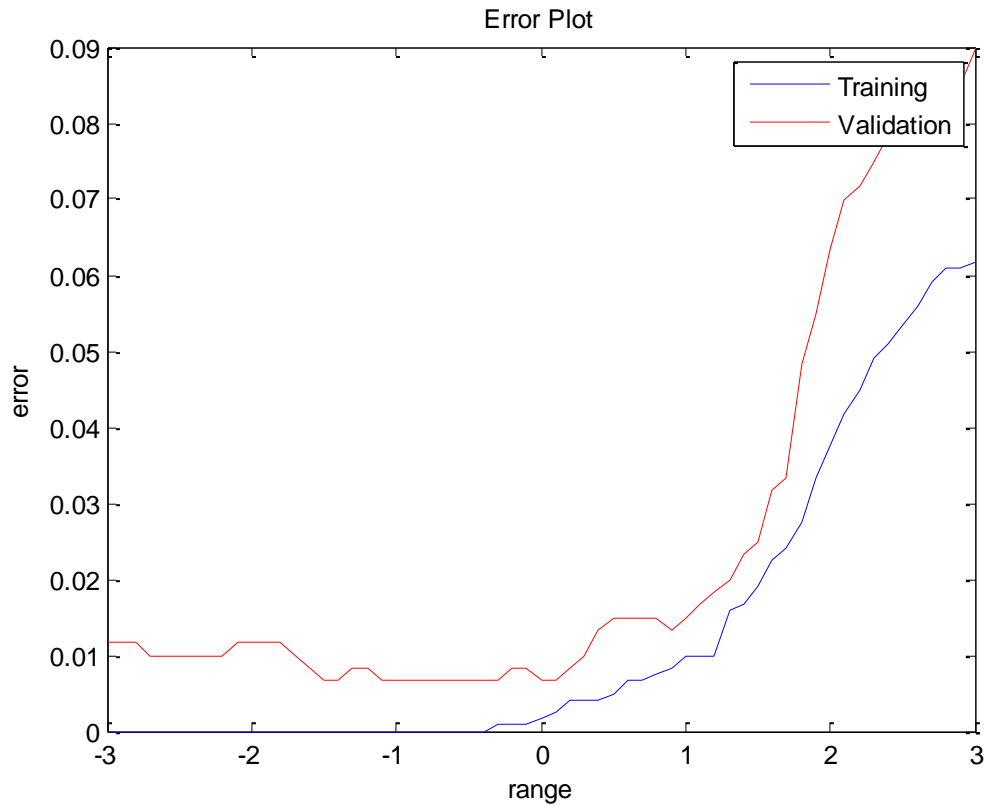VldN8.pgm

False Negative:

VldP44.pgm VldP46.pgm

trainingError = 0, validationError = 0.0083

Part6:

Error Plot

Here we can see the same pattern of graph as in part 3 with a more stable phase until a minimum value where after the error rate grow ups. The minimum here is also lower than in part 3 which is certainly due to the HOG mapping which is apparently better preprocessor of the data. We choose lambda 10^0.1

False Positive:
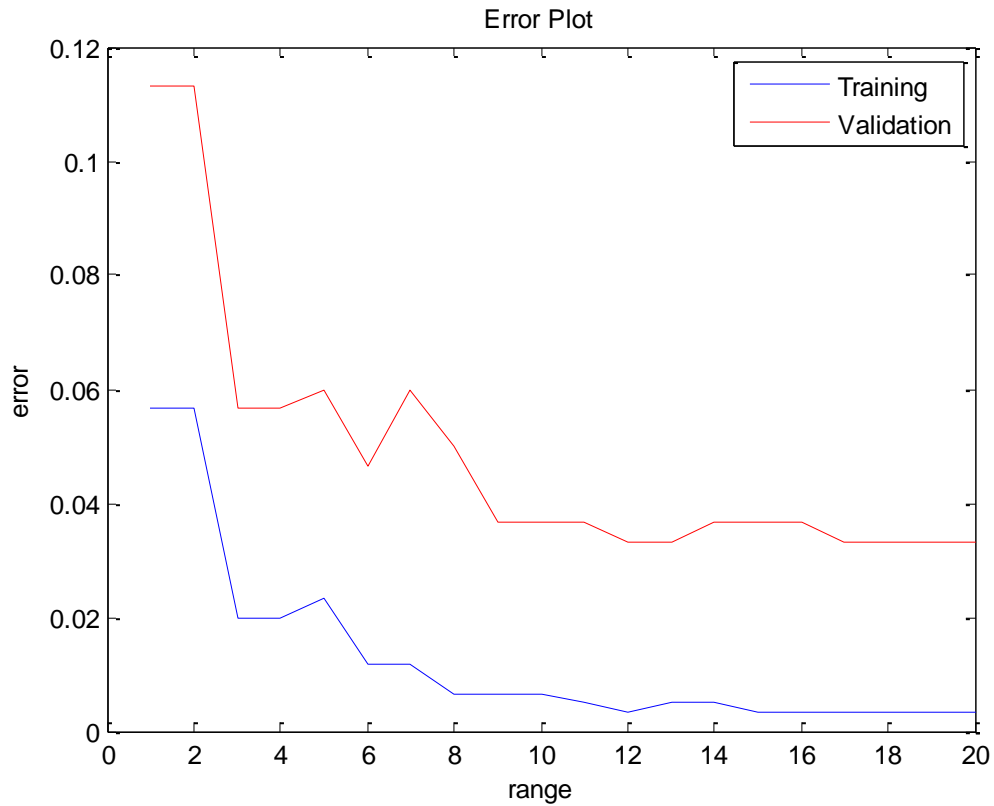
VldN10.pgm

VldN107.pgm

False Negative:

VldP44.pgm

VldP69.pgm

Minimum error: 0.0067

Part7:

Error Plot

The two graph are decreasing as expected since as T grows we hold more weak classifier which is making more combination of strong classifier and get better results. T here was chosen to be 12 which is equal to the first lowest error rate.

False Positive:

VldN107.pgm

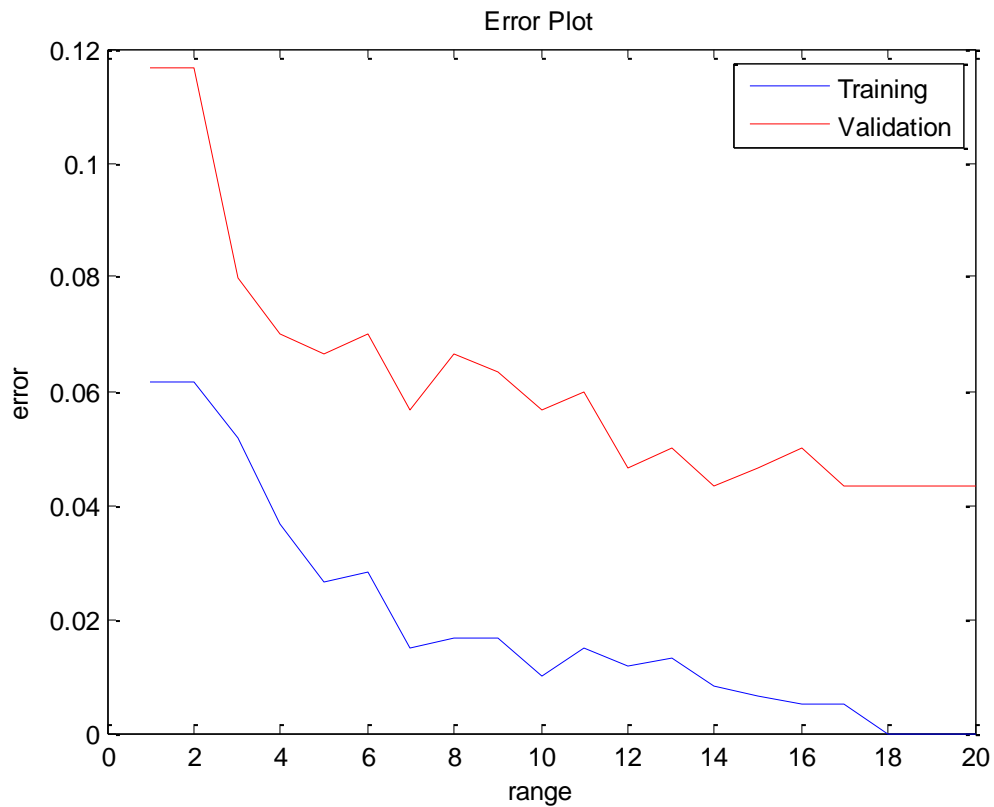VldN125.pgm

False Negative:

VldP138.pgm

VldP44.pgm

Validation error: 0.033333

Part8:

Error Plot

Same observation as in part 7 where a decreasing pattern was expected. This was got with a priori the same error rate. T here was chosen to be 14 using the same logic as before.

False Positive:

VldN107.pgm

VldN133.pgm

False Negative:

VldP111.pgm

VldP128.pgm