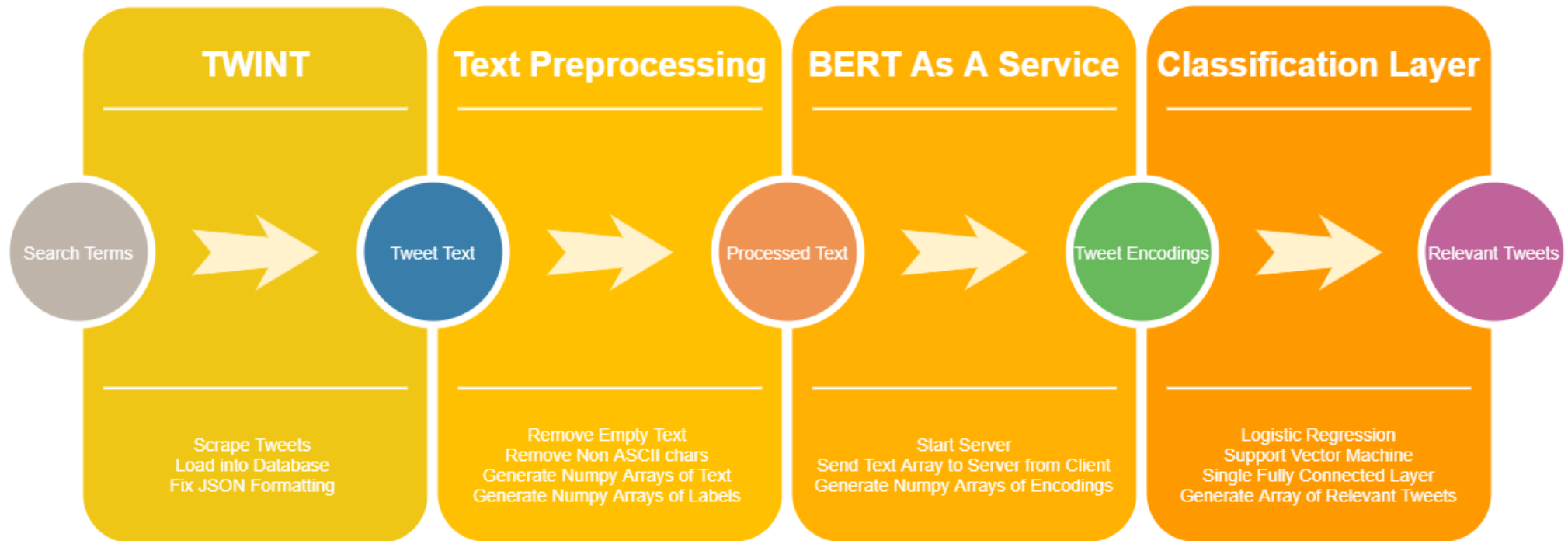


## Tweet Relevance Classification Pipeline



As seen in the final classification layer, we have experimented with several options such as logistic regression, SVM, and single fully connected layer. The following pages contain metrics that we will use to determine which option we go with in the final pipeline.

## Logistic Regression:

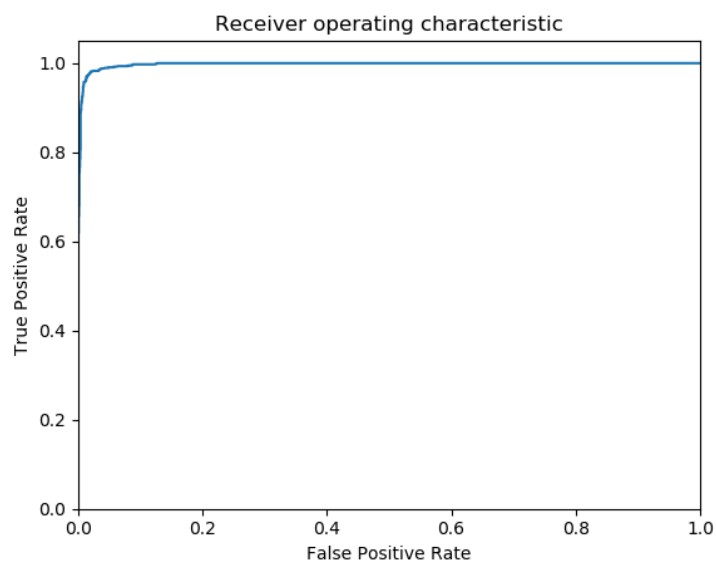
Training Accuracy: 0.9807

Training AUC: 0.9974

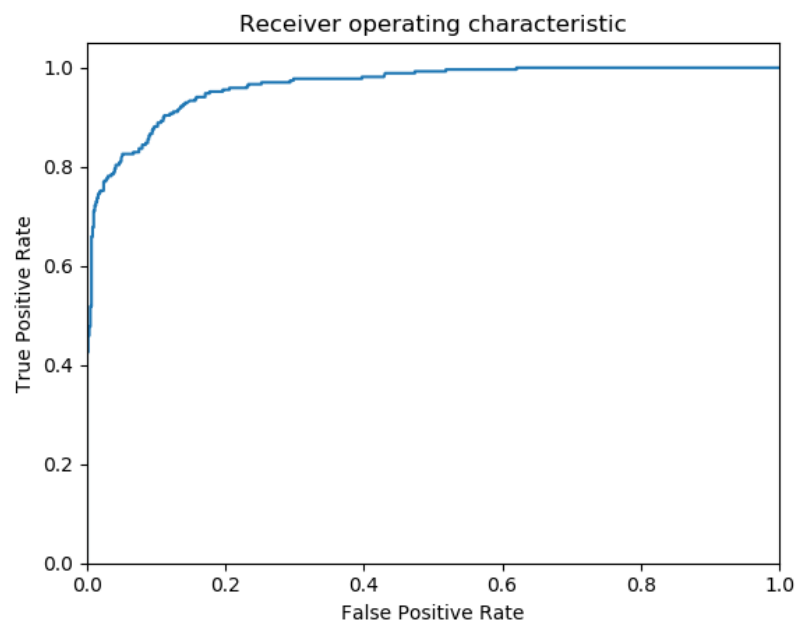
Testing Accuracy: 0.9119

Testing AUC: 0.9639

Training ROC:



Testing ROC:

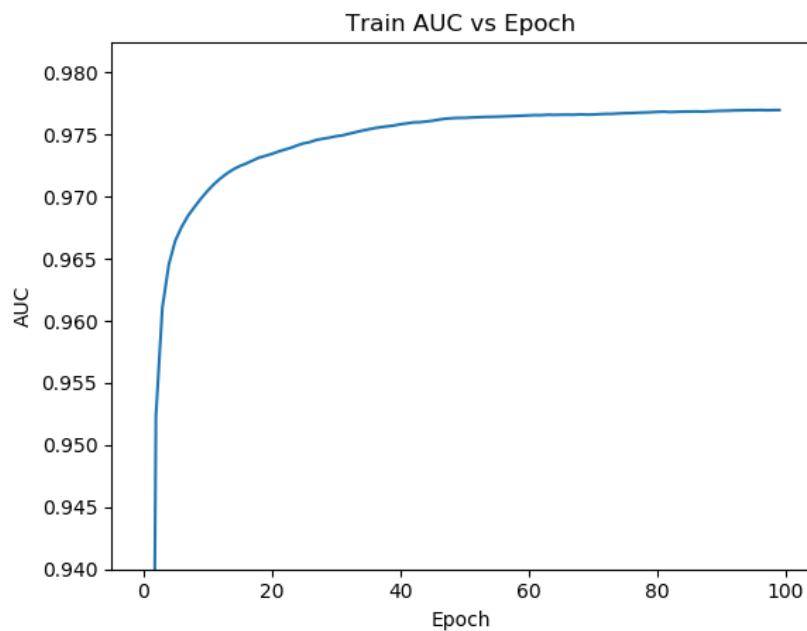
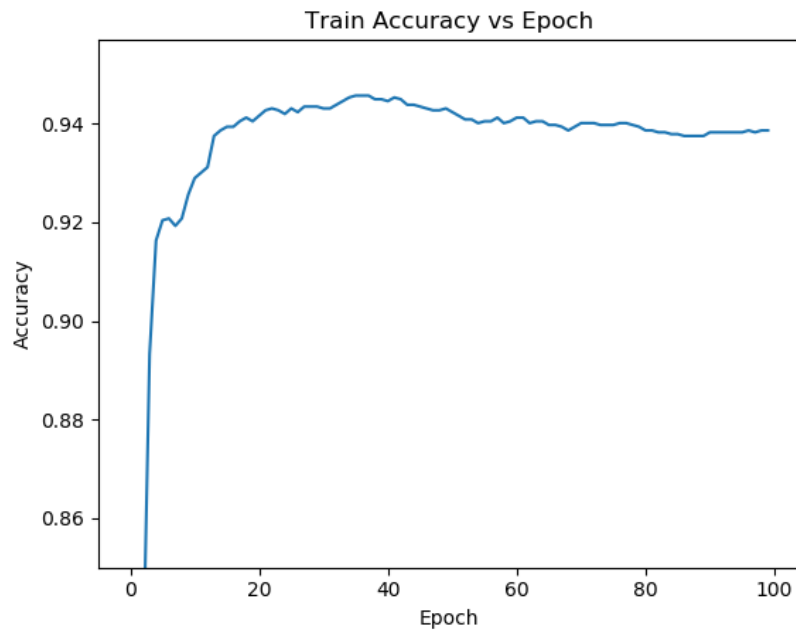


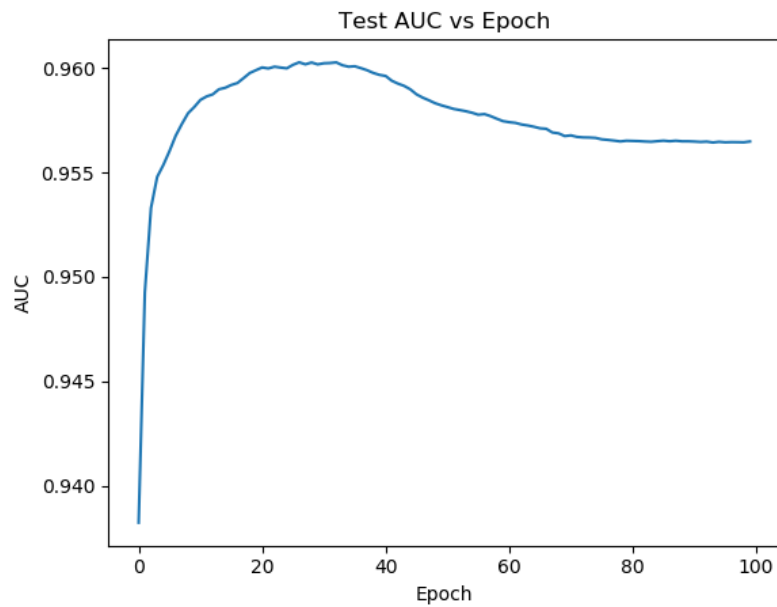
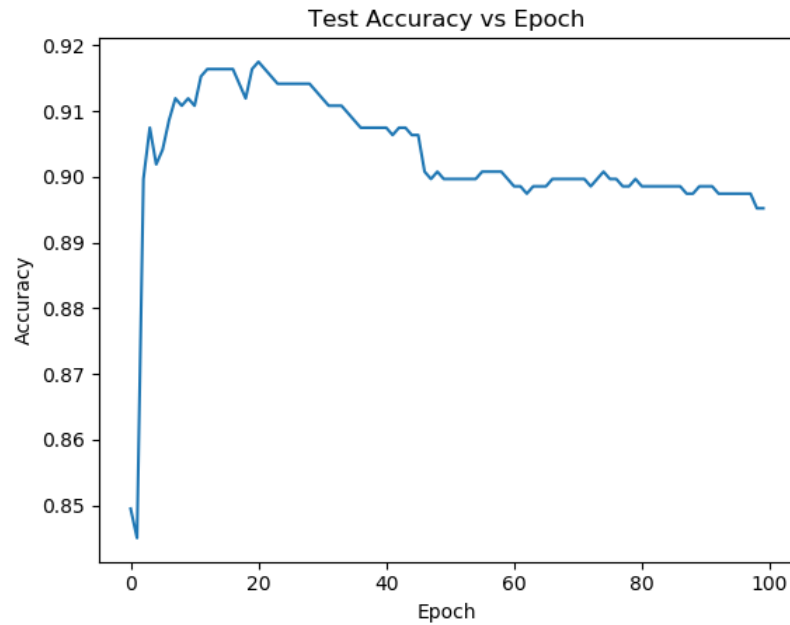
## Neural Network

Architecture: Single Fully Connected Layer, 768 input neurons, 2 output neurons + Softmax

Please make note of scales on graphs. They have been adjusted to display the trends of interest off which further decisions were based

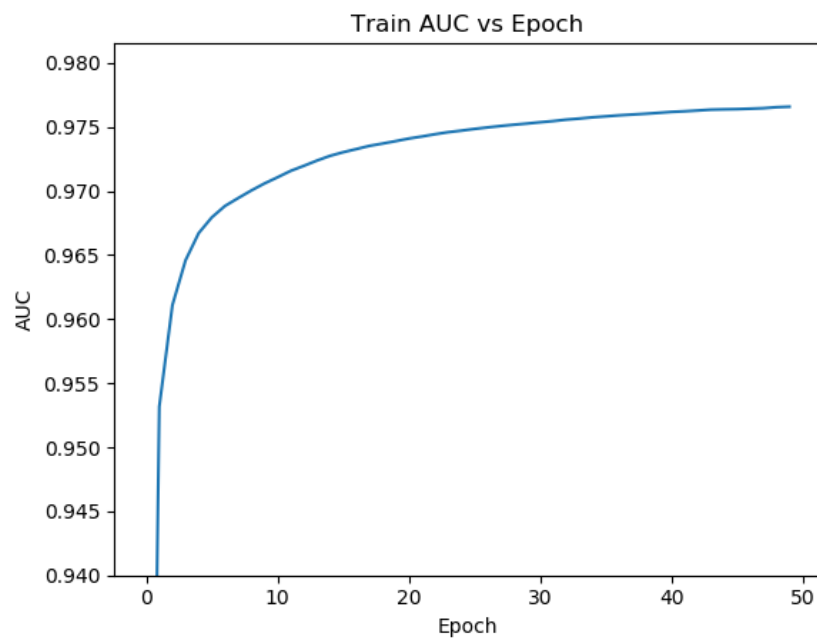
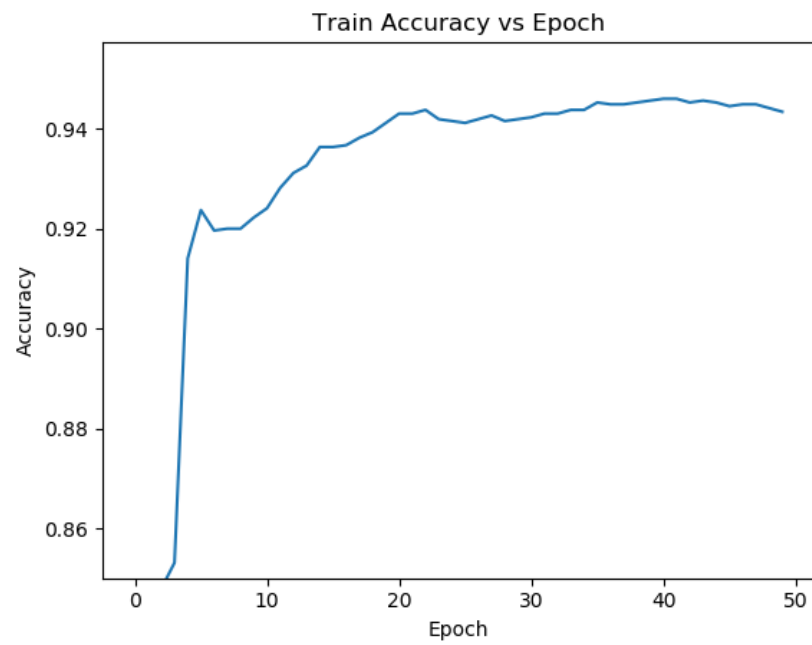
### Metrics Over 100 Epochs:

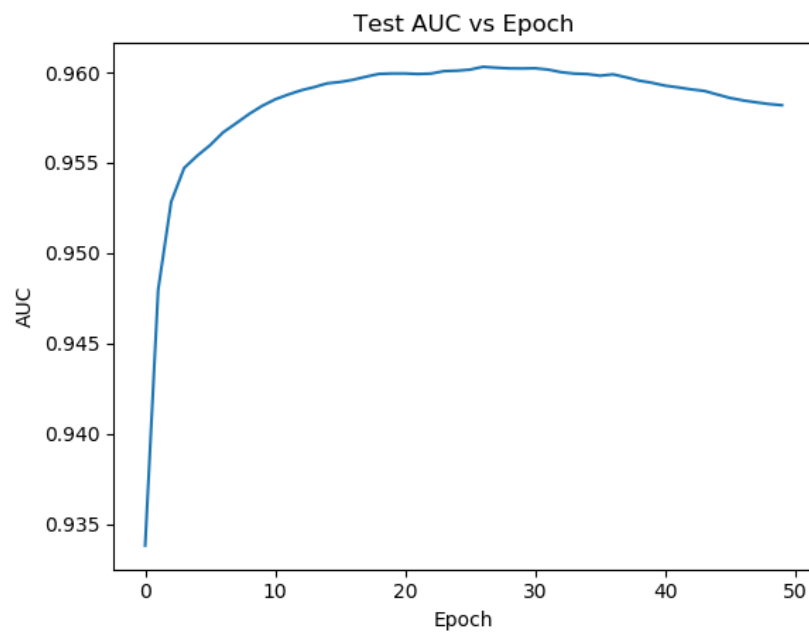
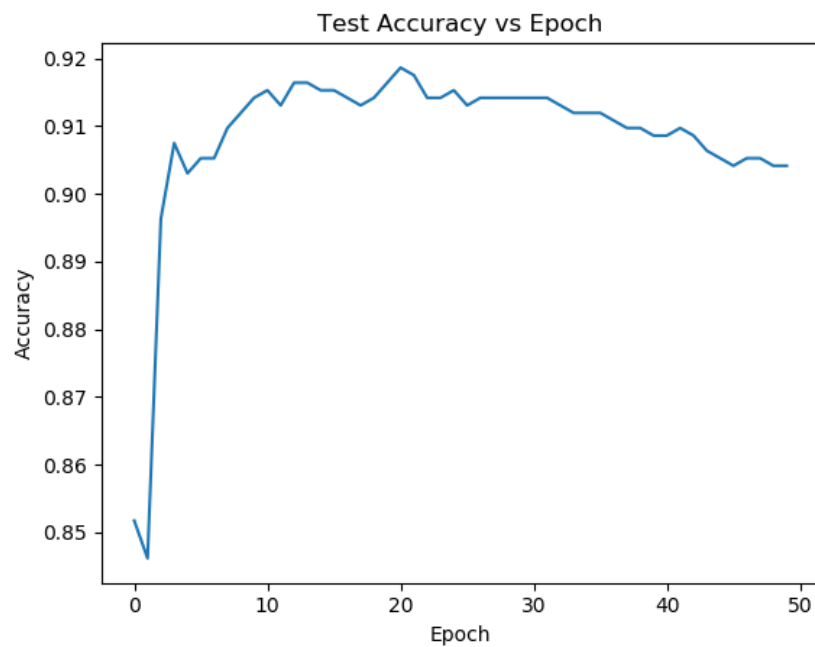




The training accuracy and AUC peak and plateau around epoch 40. However, by this point the test accuracy and AUC are in decline, suggesting the model has begun to overfit. As test accuracy and AUC peak around epochs 20-30 while maintaining good training set performance, a closer look at the performance of epochs around that interval is helpful.

### Metrics Over 50 Epochs:





These finer-grained graphs show that the model begins to overfit around 25 epochs as both test accuracy and AUC begin to drop. As such, 25 epochs was chosen as the stopping point for further analysis.

### Metrics for Epoch 25:

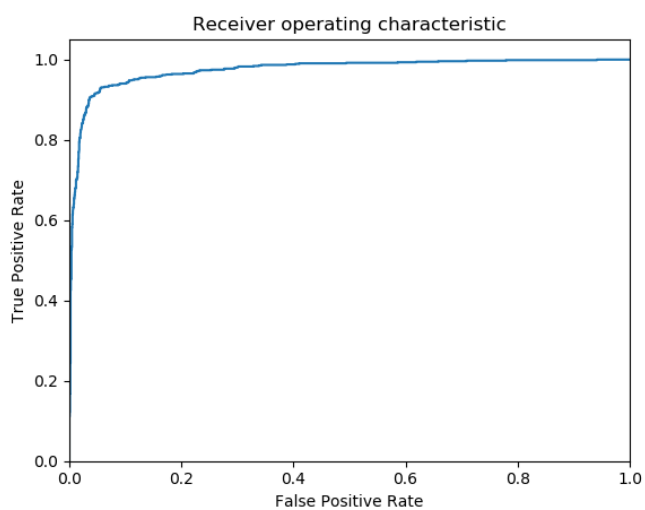
Training Accuracy: 0.9409

Training AUC: 0.9744

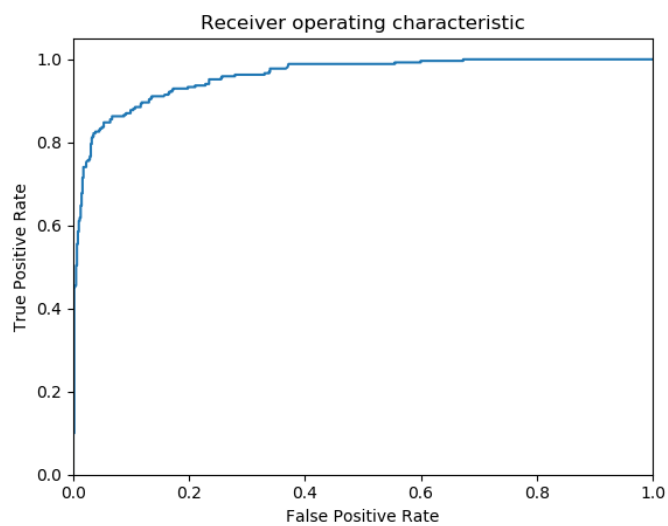
Testing Accuracy: 0.9152

Testing AUC: 0.9596

Training ROC:



Testing ROC:



## Support Vector Machine:

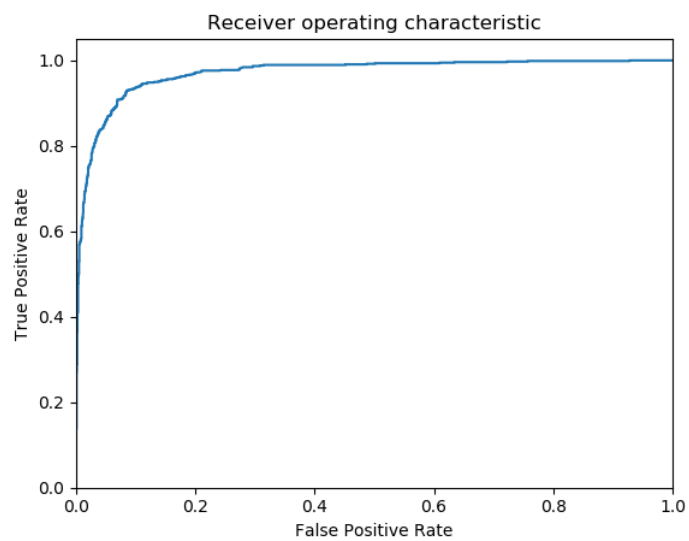
Training Accuracy: 0.9249

Training AUC: 0.9710

Testing Accuracy: 0.9064

Testing AUC: 0.9603

Training ROC:



Testing ROC:

