## CS 613 - Machine Learning

Assignment 4 - Artificial Neural Networks Alex Lapinski Fall 2016

11/27/2016

## 1 Binary Artificial Neural Networks

Testing Error | 0.337679269883

Table 1: Binary ANN Testing Error

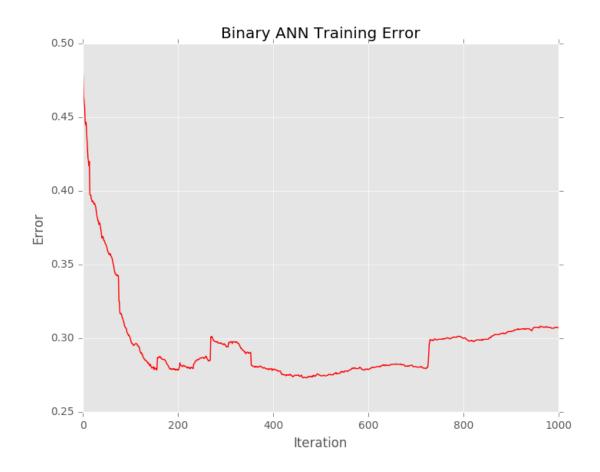


Figure 1: Training Error for ANN

## 2 The Precision-Recall Tradeoff

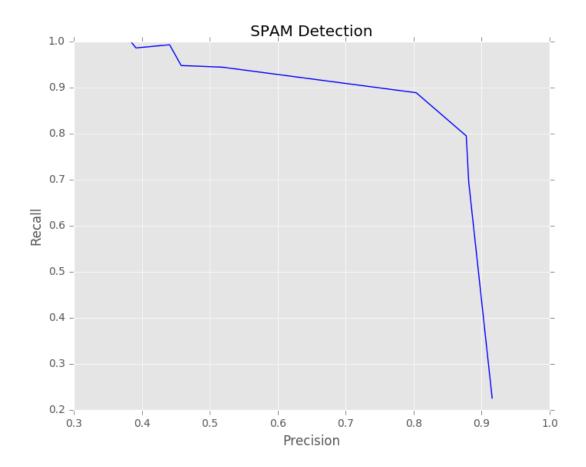


Figure 2: PR-Graph for Binary ANN  $\,$ 

## 3 Multi-Class Artificial Neural Networks

Testing Error | 0.181946403385

Table 2: ANN Testing Error



Figure 3: Training Error for Multi-Class ANN