

# Mobile Weka

Matthew Swartwout      James Zhang

September 30, 2015

## 1 Introduction of Algorithms

### 1.1 J48

### 1.2 SVM

### 1.3 Naive Bayes

Naive Bayes is an classification algorithm based off applying Bayes' theorem and assuming independence between all of the labels. Bayes' theorem says that  $P(A|B) = P(A)P(B|A)/P(B)$ . The input to Naive Bayes' is our data, which is represented as a vector of  $n$  features ( $x$ ), and we are trying to calculate the probability that these features will result in a given class ( $C$ ), e.g.  $P(C|x)$ . This can be rewritten with Bayes' Theorem as  $P(C)P(x|C)/p(x)$ . Each of these three probabilities can be easily calculated with the provided data set. Doing this over each of the  $n$  features included in  $x$  and we can obtain the probability that a certain set of features.

### 1.4 RBF Network

## 2 Data Preprocessing

## 3 Experimental Results

### 3.1 Experiment 1

Algorithm	Recall	Precision	Correctly Classified	Incorrectly Classified
J48	1.0	0.9375	428	10
SVM	0.0133	1.0	290	148
Naive Bayes	1.0	0.9375	428	10
RBF Network	1.0	0.9554	431	7

### 3.2 Experiment 2

Algorithm	Recall	Precision	Correctly Classified	Incorrectly Classified
J48	1.0	1.0	1355	0
SVM	0.0	0.0	456	899
Naive Bayes	0.9652	0.7296	1234	121
RBF Network	0.9340	0.8432	1239	116

### 3.3 Experiment 3

## 4 Simple Results Analysis

## 5 Project Contributions