

# LABRADOODLES VERSUS FRIED CHICKEN: GRAYSCALE VERSION



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# OUTLINE

MODELS

FEATURE EXTRACTION

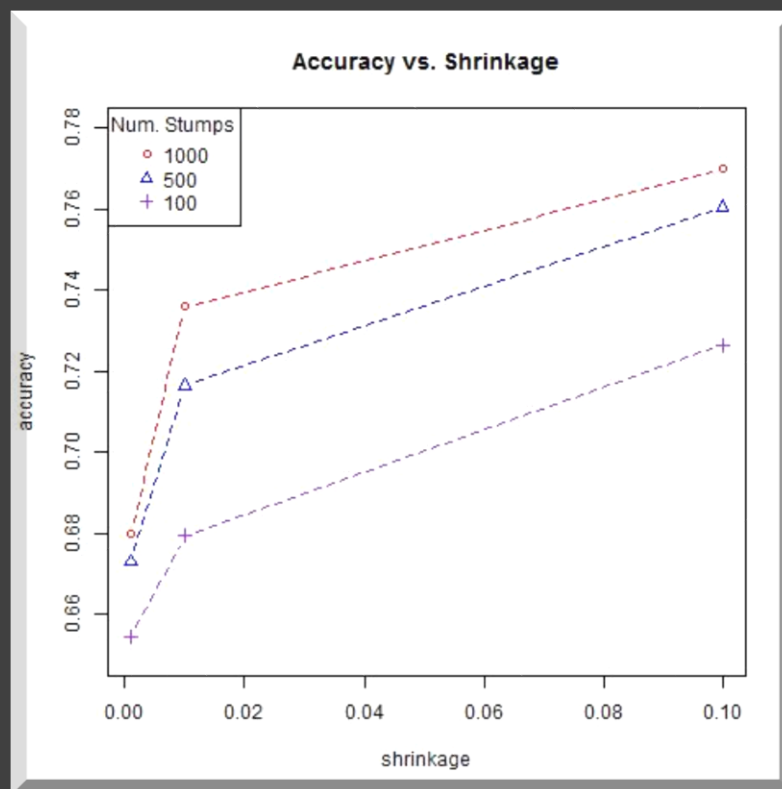
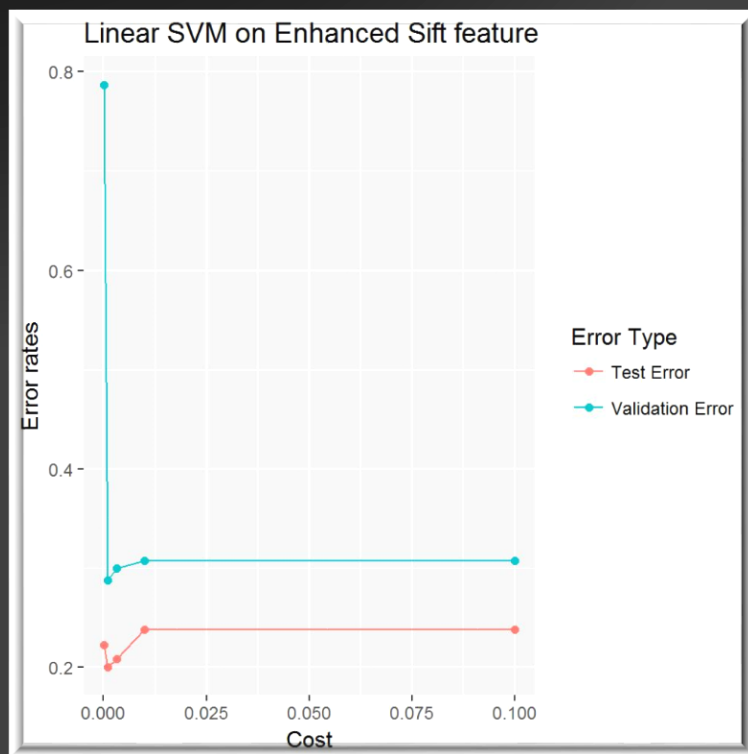
RESULTS

ANALYSIS

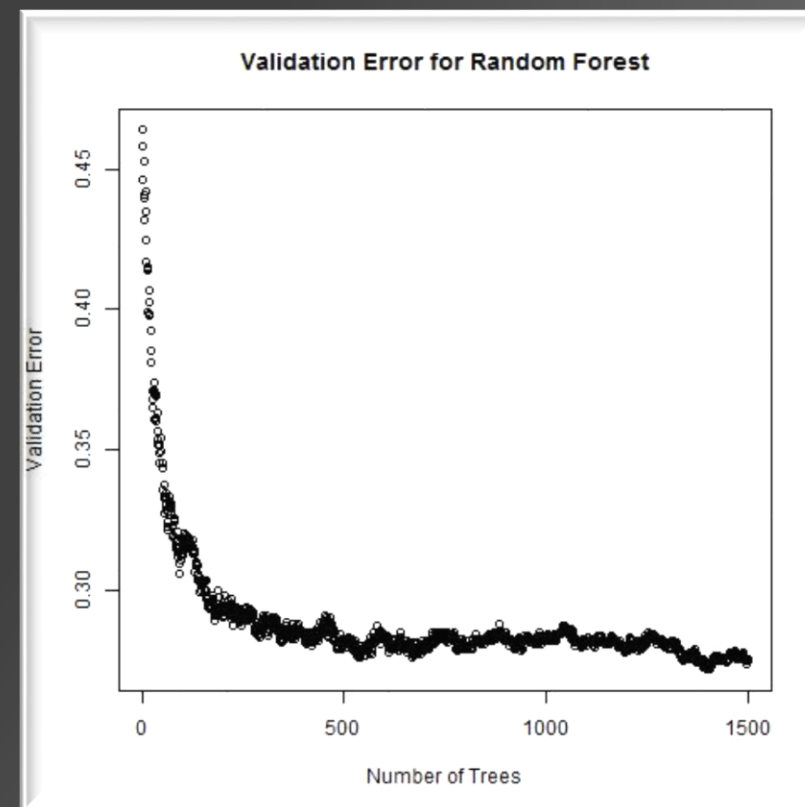
# MODELS

## GMB with Decision Stumps

## Support Vector Machine

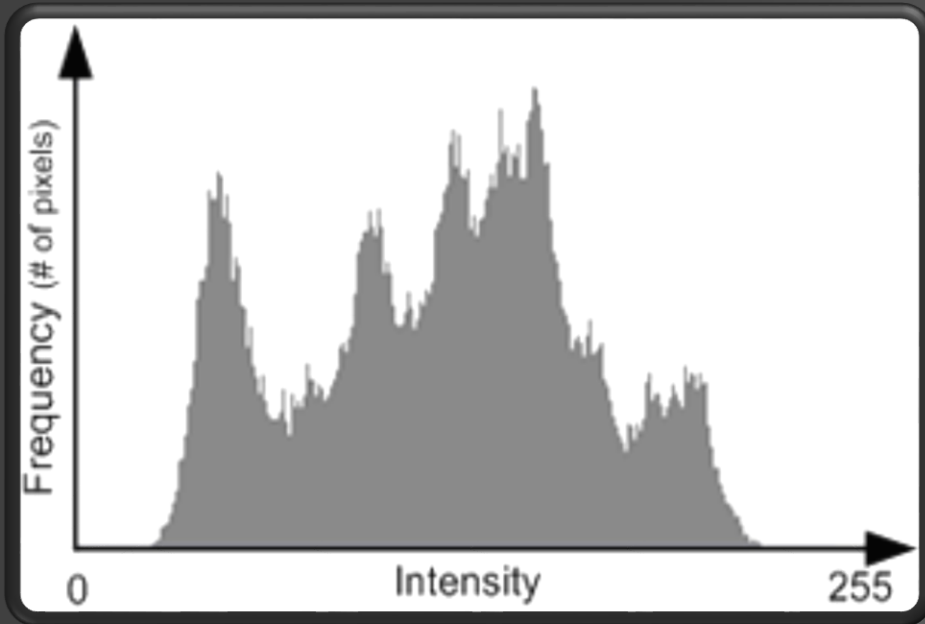
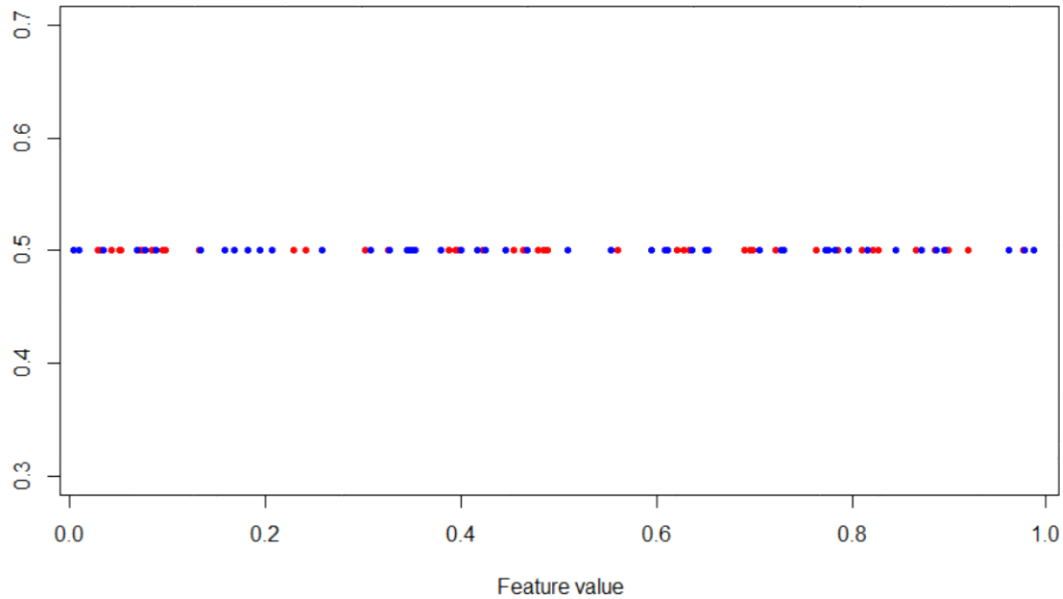


## Random Forests



# FEATURE EXTRACTION

Feature values for each class



## 1. DOWNSIZED SIFT FEATURES

- REMOVED LOW VARIANCE FEATURES
- REMOVED HOMOGENOUS FEATURES

## 2. GRAYSCALE BINNING FEATURES

- 256 BINS
- REMOVED LOW VARIANCE FEATURES

# RESULTS

- 3 MODELS: GBM, RANDOM FOREST, LINEAR SVM
- 3 FEATURE SETS: FULL SIFT, SMALL SIFT, SMALL SIFT + GRAYSCALE

Blue = Training results

Grey = Test results

		Full SIFT Train	Full SIFT Test	Small SIFT Train	Small SIFT Test	Small SIFT+Grayscale Train	Small SIFT+Grayscale Test
GBM	Error	0.2519	0.238	0.2426	0.24	0.0033333	0.006
	Time	282 sec	1.22 sec	113 sec	0.52 sec	134 sec	0.86 seconds
	Size	19.09 MB		15.06MB		15.9MB	
Random Forest	Error	0.288	0.286	0.27	0.26	0.004666	0.006
	Time	356 sec	2.45 sec	165 sec	0.93 sec	75.87 sec	0.72 sec
	Size	2.227MB		1.663MB		.17MB	
SVM Linear	Error	0.89	0.51	0.288	0.2	0.19	0.132
	Time	134.34sec	15.12sec	67.17 sec	7.56 sec	67.94 sec	7.97 sec
	Size						

# ANALYSIS

- RANDOM FOREST BENEFITS

- SMALL STORAGE SPACE
- QUICK PREDICTION
- SMALL TRAINING TIME

Baseline Model,  
Original features



Blue = Training results  
Grey = Test results

		Full SIFT Train	Full SIFT Test	Small SIFT Train	Small SIFT Test	Small SIFT+Grayscale Train	Small SIFT+Grayscale Test
GBM	Error	0.2519	0.238	0.2426	0.24	0.0033333	0.006
	Time	282 sec	1.22 sec	113 sec	0.52 sec	134 sec	0.86 seconds
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Improved Model,  
Improved Features



