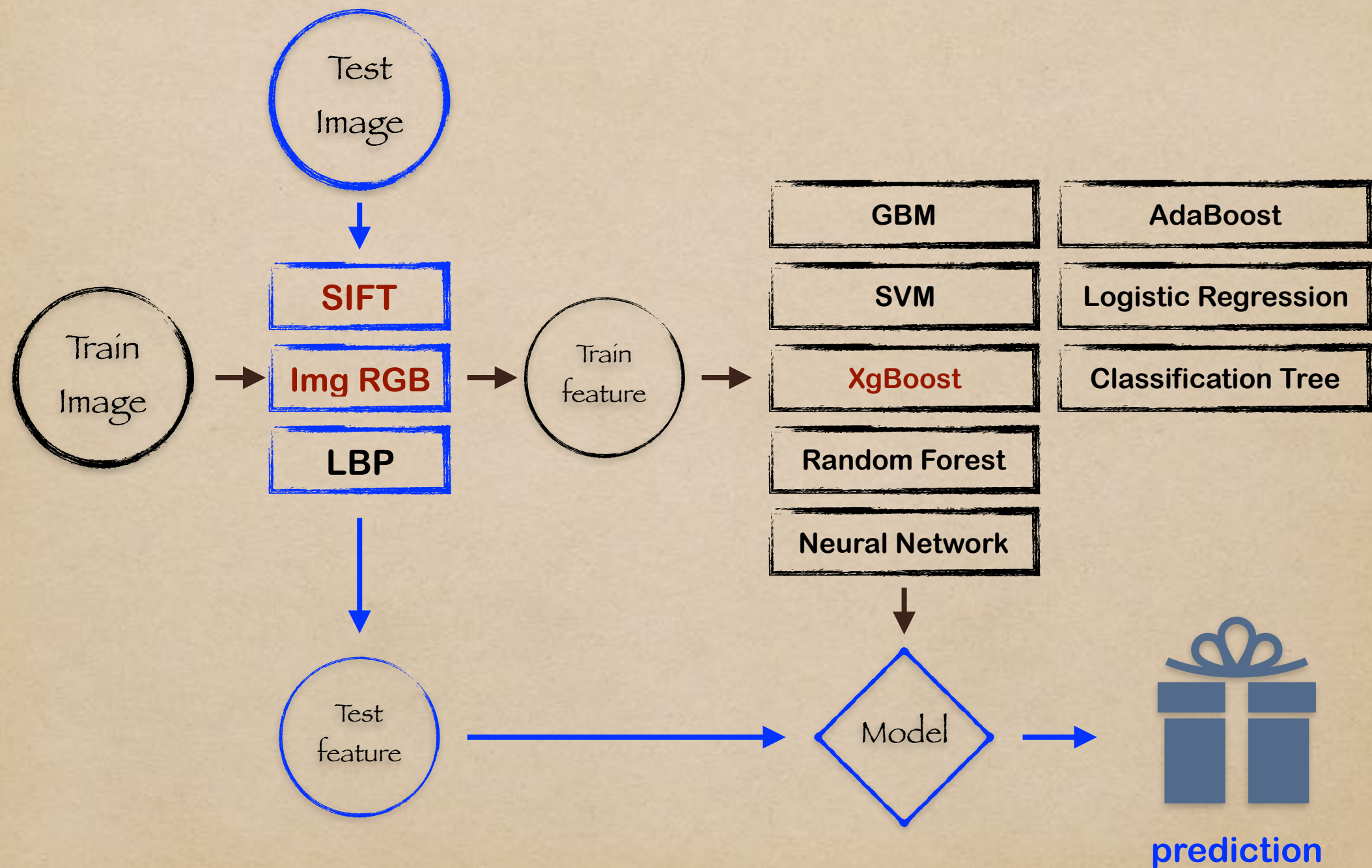


Project3-Group3

Dogs, Fried Chicken, or Blueberry Muffins?

Keran Li, Mingming Liu, Zhongxing Xue, Yuhan Zha, Junkai Zhang

SIX Model



Dogs, Fried Chicken, or Blueberry Muffins?

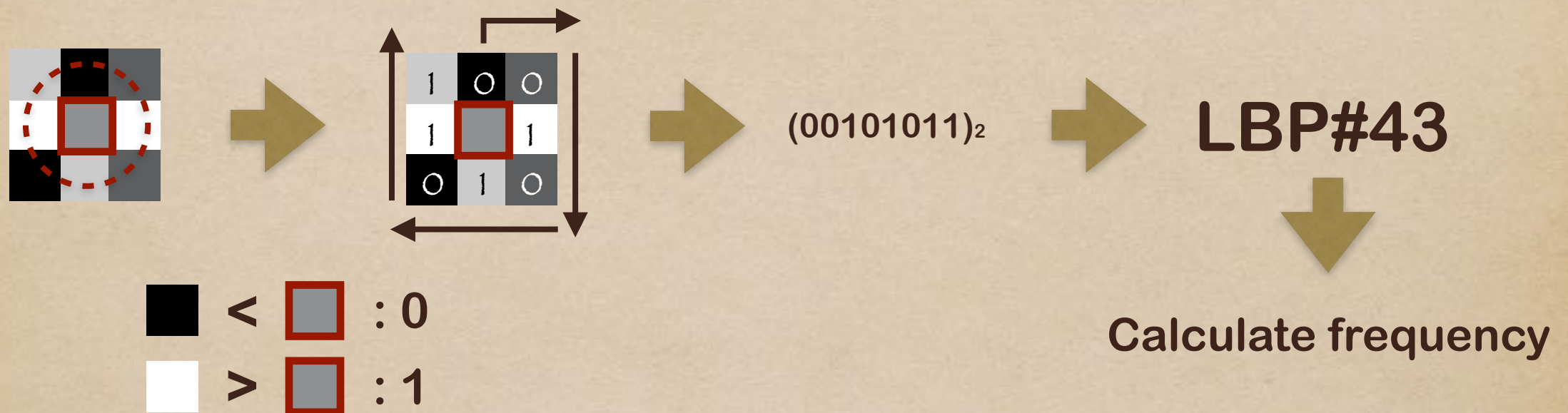
SIX Model

- ◆ Feature Selection — SIFT, LBP, Image RGB
- ◆ Classification Model
- ◆ Result

Dogs, Fried Chicken, or Blueberry Muffins?

LBP Feature

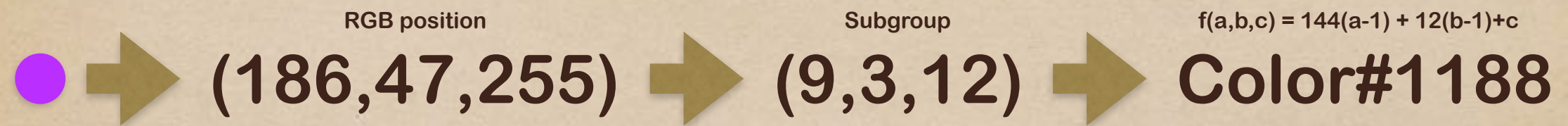
(Local Binary Patterns)



- ✗ lack of color change
- ✗ Scale & spin Variance
- ✗ Huge time cost!

Dogs, Fried Chicken, or Blueberry Muffins?

Image RGB Feature



Range	Subgrp
0-21	1
22-42	2
43-64	3
65-85	4
86-106	5
107-128	6
129-149	7
150-170	8
171-192	9
193-213	10
214-234	11
235-255	12

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Calculate frequency of each number as a RGB feature.

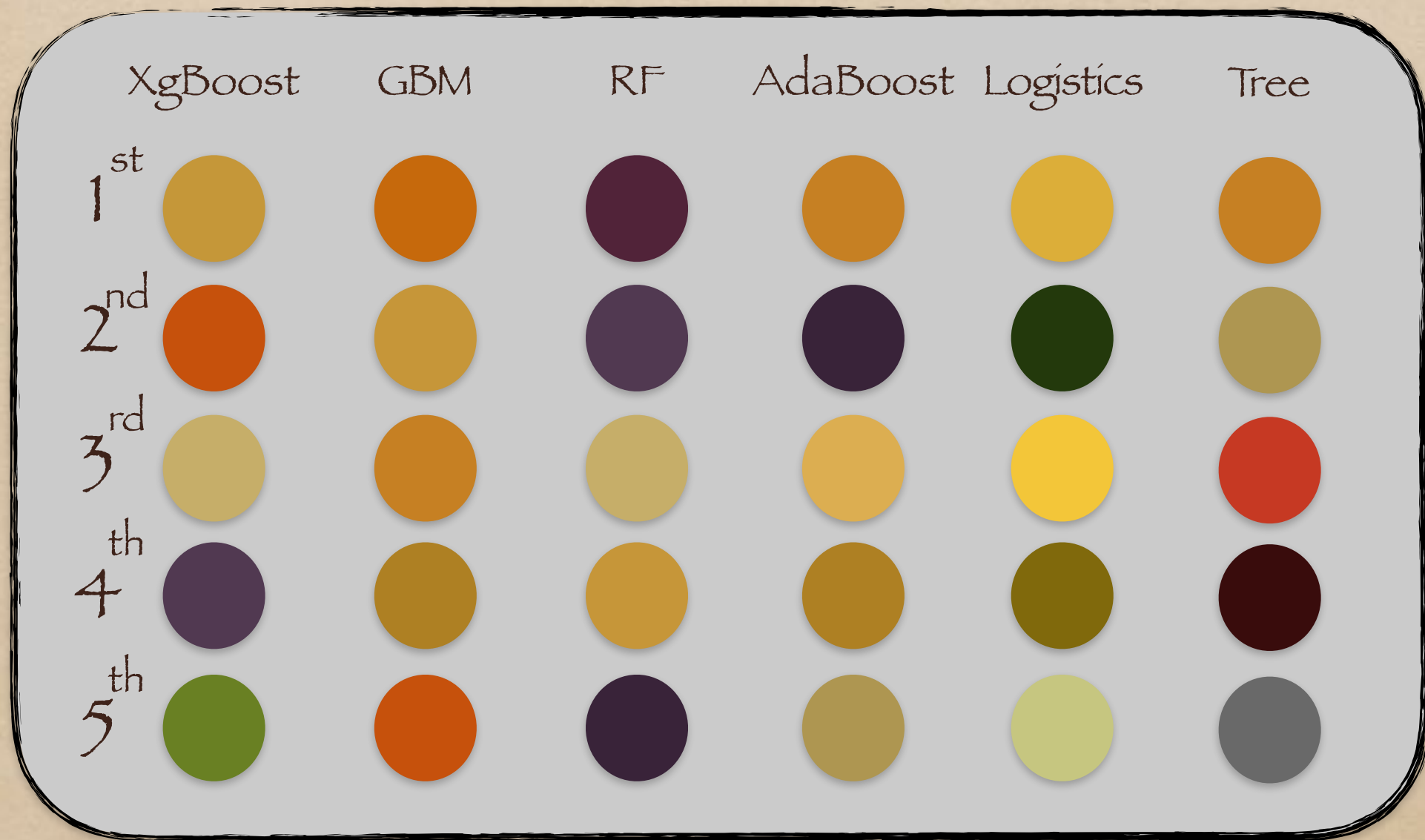
Now we have 1728 new features:
Color#1 ~ Color#1728

- ✓ Time cost: 15~20 mins
- ✓ Huge increase of accuracy

Dogs, Fried Chicken, or Blueberry Muffins?

Image RGB Visualization

(With feature: Only ImageRGB)

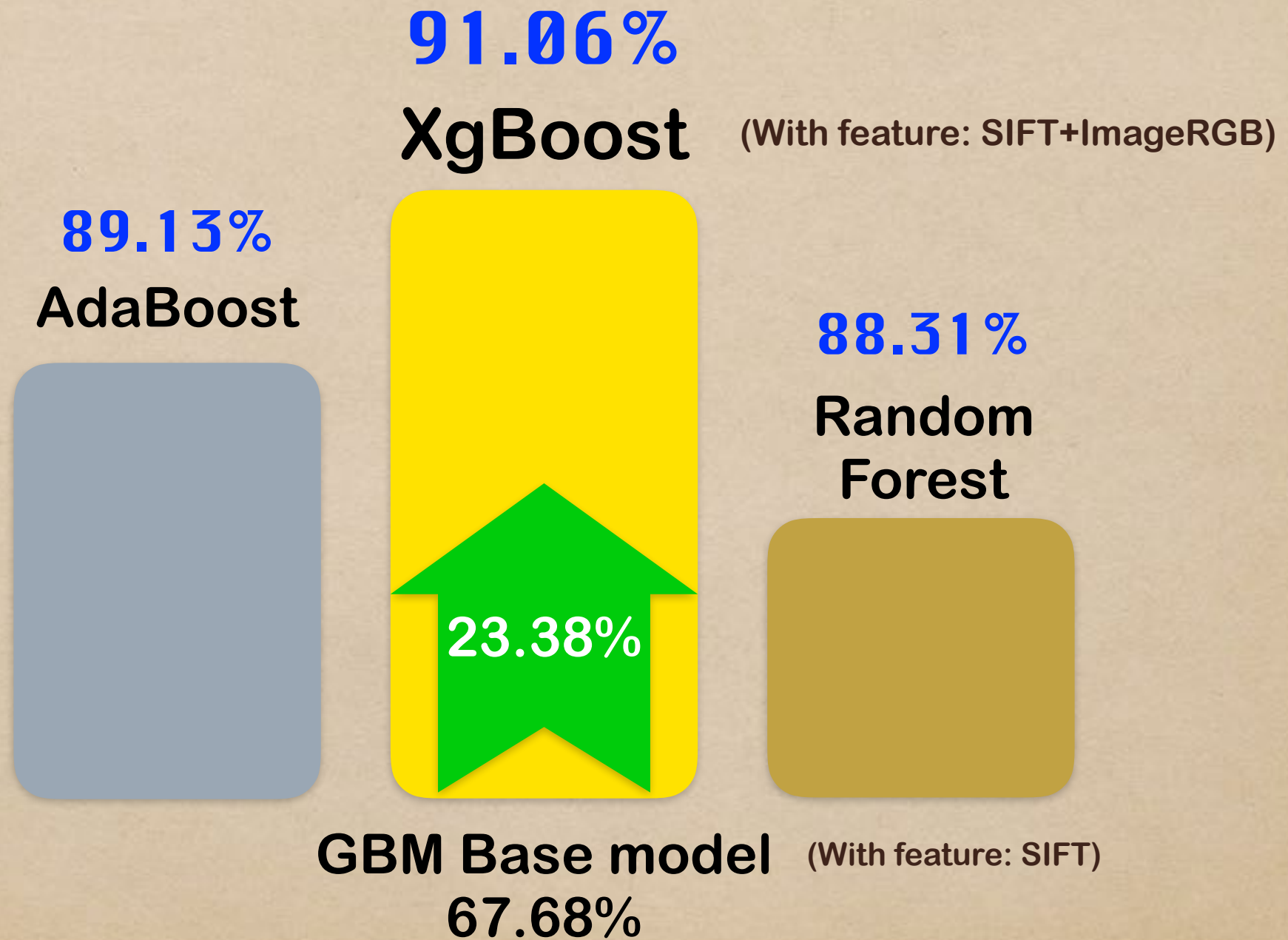


Dogs, Fried Chicken, or Blueberry Muffins?

SIX Model

- ◆ Feature Selection
- ◆ Classification Model — XgBoost
- ◆ Result

Classification Model



Dogs, Fried Chicken, or Blueberry Muffins?

SIX Model

- ◆ Feature Selection
- ◆ Classification Model
- ◆ Result

Dogs, Fried Chicken, or Blueberry Muffins?

Accuracy (%) + Time (s)

Features	Algorithm	GBM	XgBoost	Adaboost	RF	Logistic	SVM	Tree	NN
	S 2000d	67.68	70.35	65.17	64.64	68.34	71.66	53.77	72.74
	S+I 2512d	83.75	88.69	85.57	86.09	79.45	83.36	78.02	49.37
	S+I 3717d	86.24	91.06	89.13	88.31	82.80	83.77	79.50	48.83
	I 1717d	84.30	90.65	87.48	87.21	71.11	74.97	71.11	30.12
	S+I+L 3949d	86.73	87.40	86.46	84.85	79.62	54.96	79.62	58.44

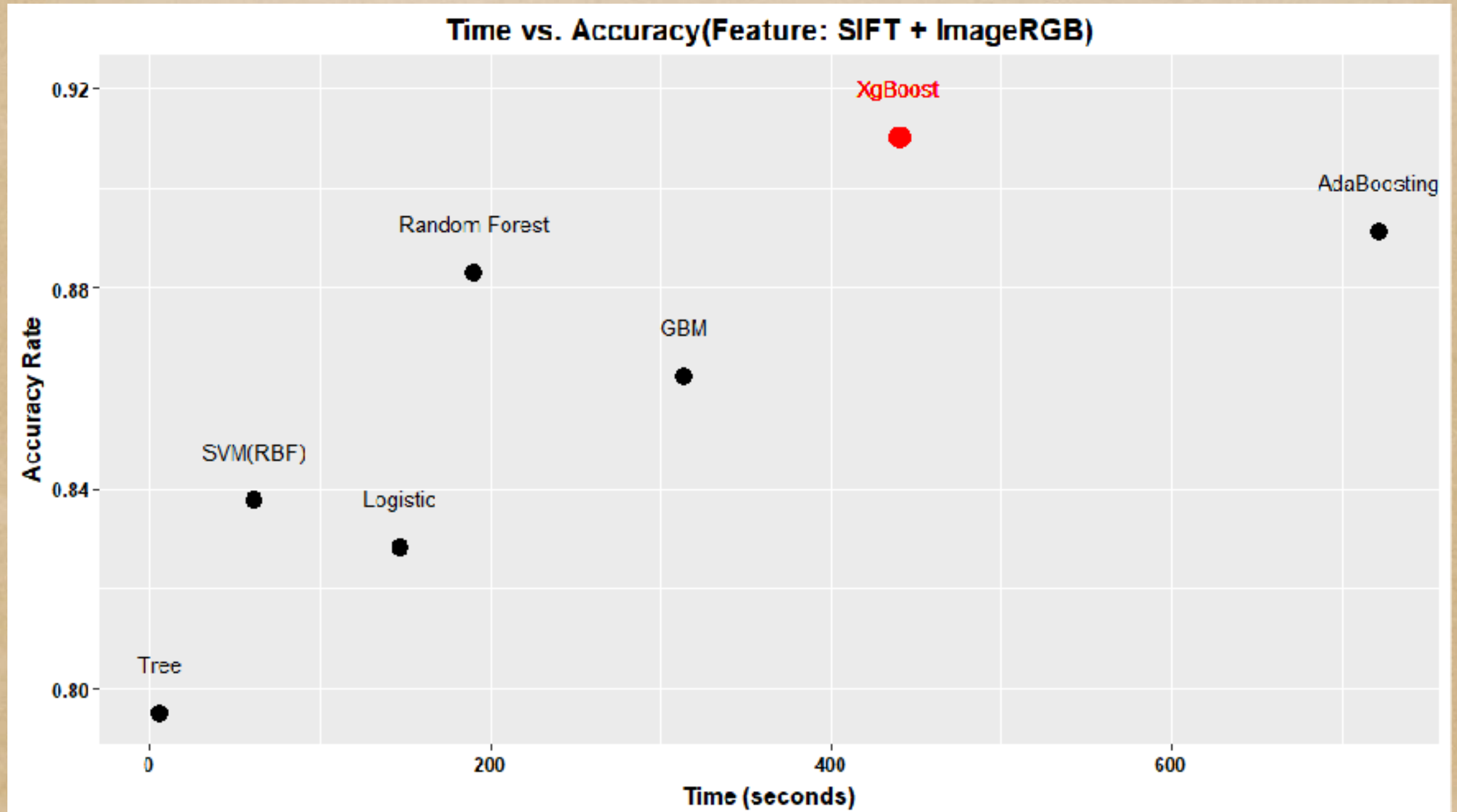
Dogs, Fried Chicken, or Blueberry Muffins?

Accuracy (%) + Time (s)

Features	Algorithm	GBM	XgBoost	Adaboost	RF	Logistic	SVM	Tree	NN
	S 2000d	67.68 178.34	70.35 375.78	65.17 5.96	64.64 188.09	68.34 55.54	71.66 43.11	53.77 2.23	72.74 >999
	S+I 2512d	83.75 219.04	88.69 389.36	85.57 503.74	86.09 122.98	79.45 50.97	83.36 36.58	78.02 2.79	49.37 >999
	S+I 3717d	86.24 313.56	91.06 440.56	89.13 721.95	88.31 190.51	82.80 146.64	83.77 61.21	79.50 5.64	48.83 >999
	I 1717d	84.30 146.32	90.65 453.77	87.48 284.36	87.21 84.90	71.11 87.21	74.97 25.44	71.11 1.79	30.12 >999
	S+I+L 3949d	86.73 333.12	87.40 463.39	86.46 932.91	84.85 227.16	79.62 153.2	54.96 27.16	79.62 3.83	58.44 687.00

Dogs, Fried Chicken, or Blueberry Muffins?

Result



Dogs, Fried Chicken, or Blueberry Muffins?

About train data

0784.jpg: Chicken, 0/8



Dogs, Fried Chicken, or Blueberry Muffins?

Project3-Group3

Dogs, Fried Chicken, or Blueberry Muffins.

Keran Li: Neural Network, Logistic
Mingming Liu: AdaBoost, Random Forest
Zhongxing Xue: GBM
Yuhan Zha: SVM, Classification Tree
Junkai Zhang: XgBoost

ppt: Zhongxing Xue
presenter: Zhongxing Xue