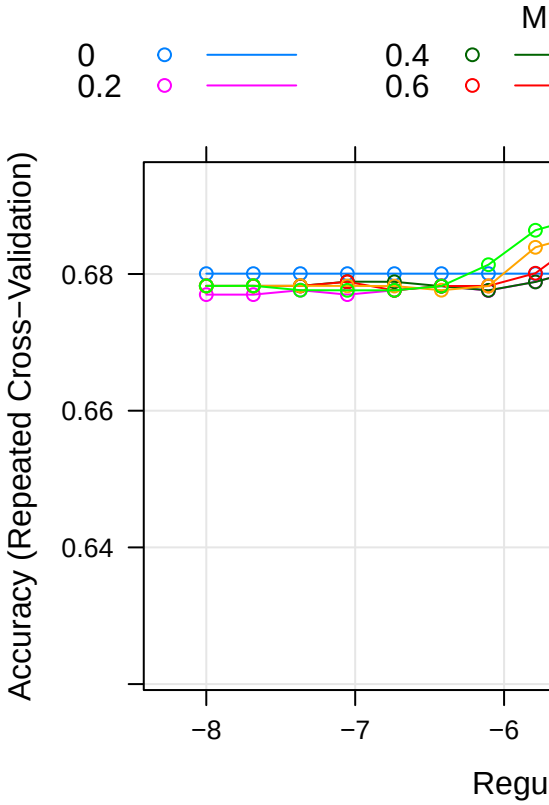
models

Elaine Xu

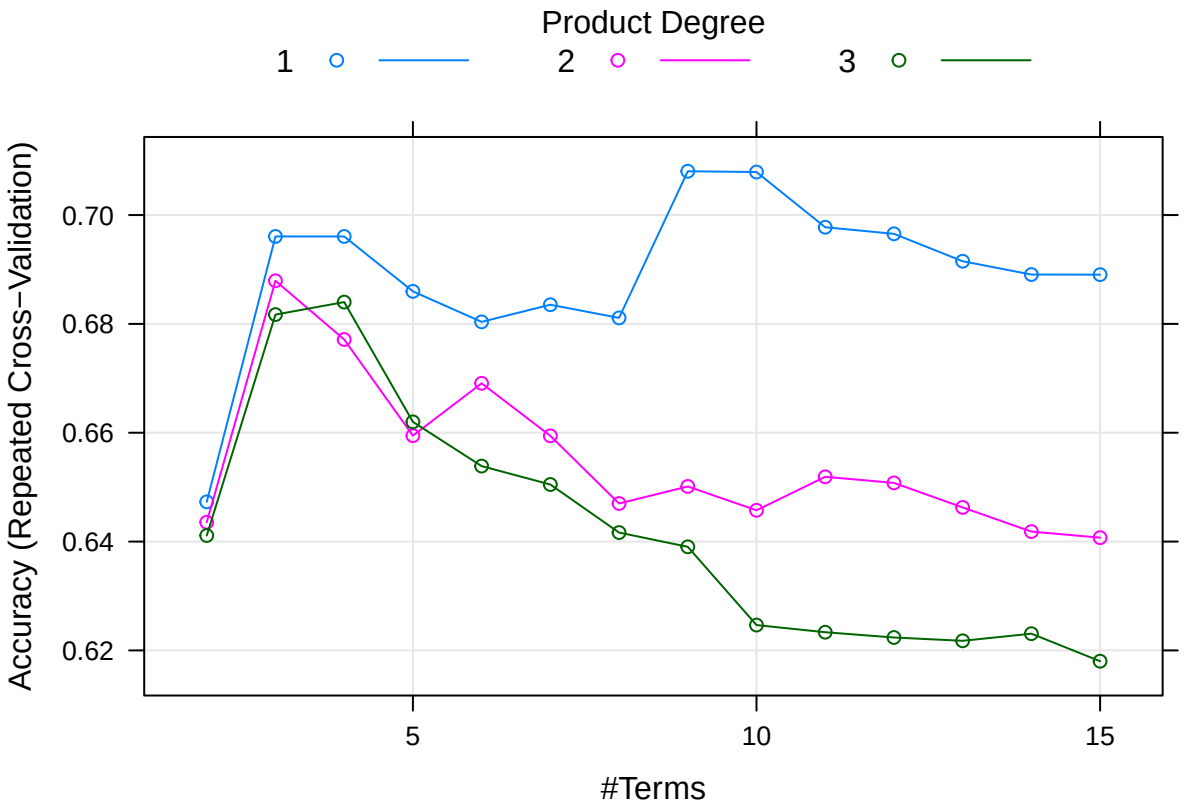
Contents

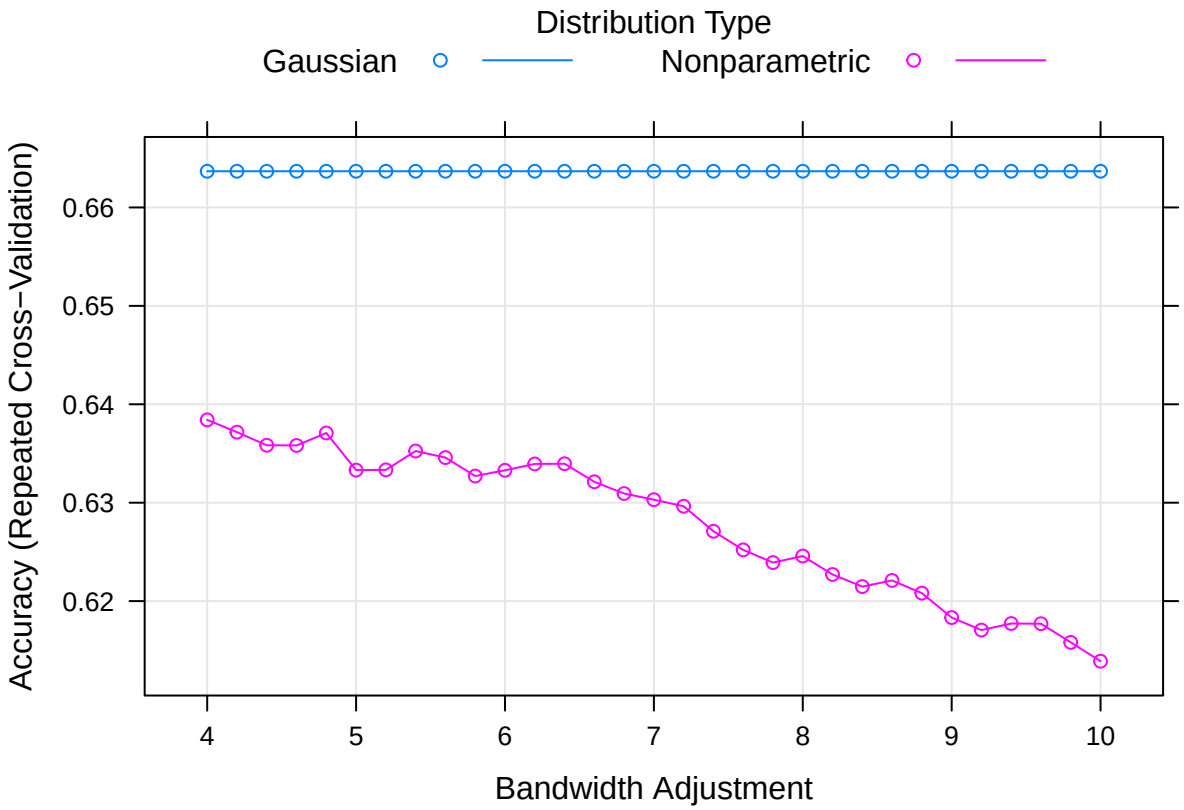
Models



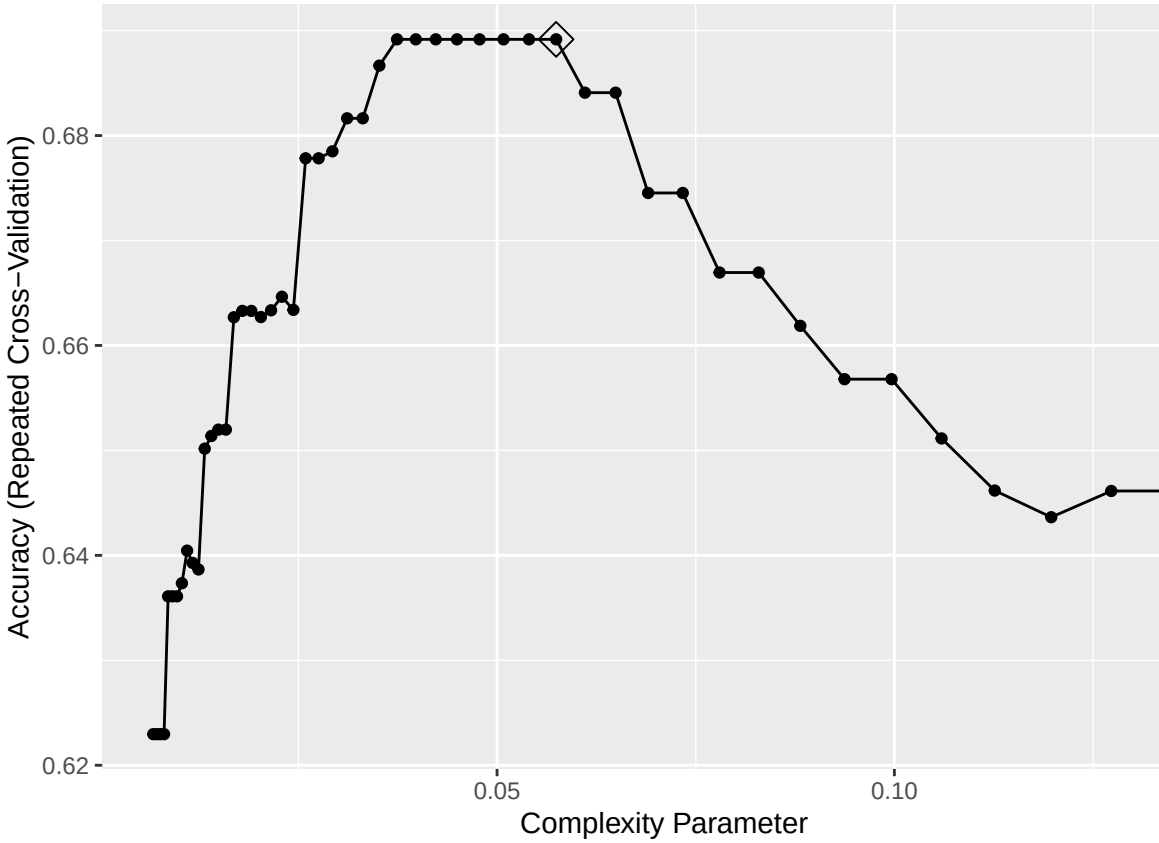
Linear methods: glm, penalized logistic regression, GAM, MARS

```
##    alpha     lambda
## 59   0.4 0.09868824
```


Product Degree
1
2
3
Accuracy (Repeated Cross−Validation)
0.70
0.68
0.66
0.64
0.62
5
10
15
#Terms

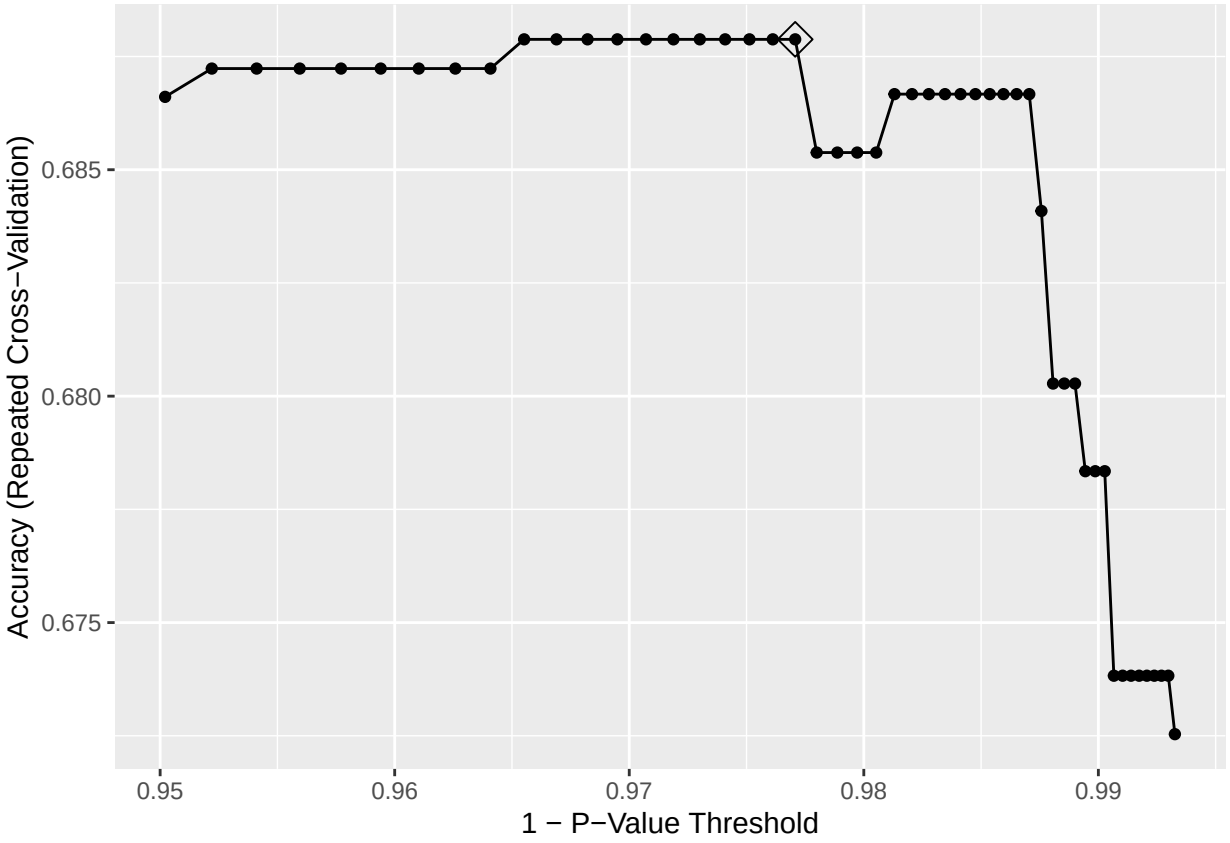

Distribution Type
Gaussian
Nonparametric
Accuracy (Repeated Cross−Validation)
0.66
0.65
0.64
0.63
0.62
4
5
6
7
8
9
10
Bandwidth Adjustment

LDA/QDA/NB

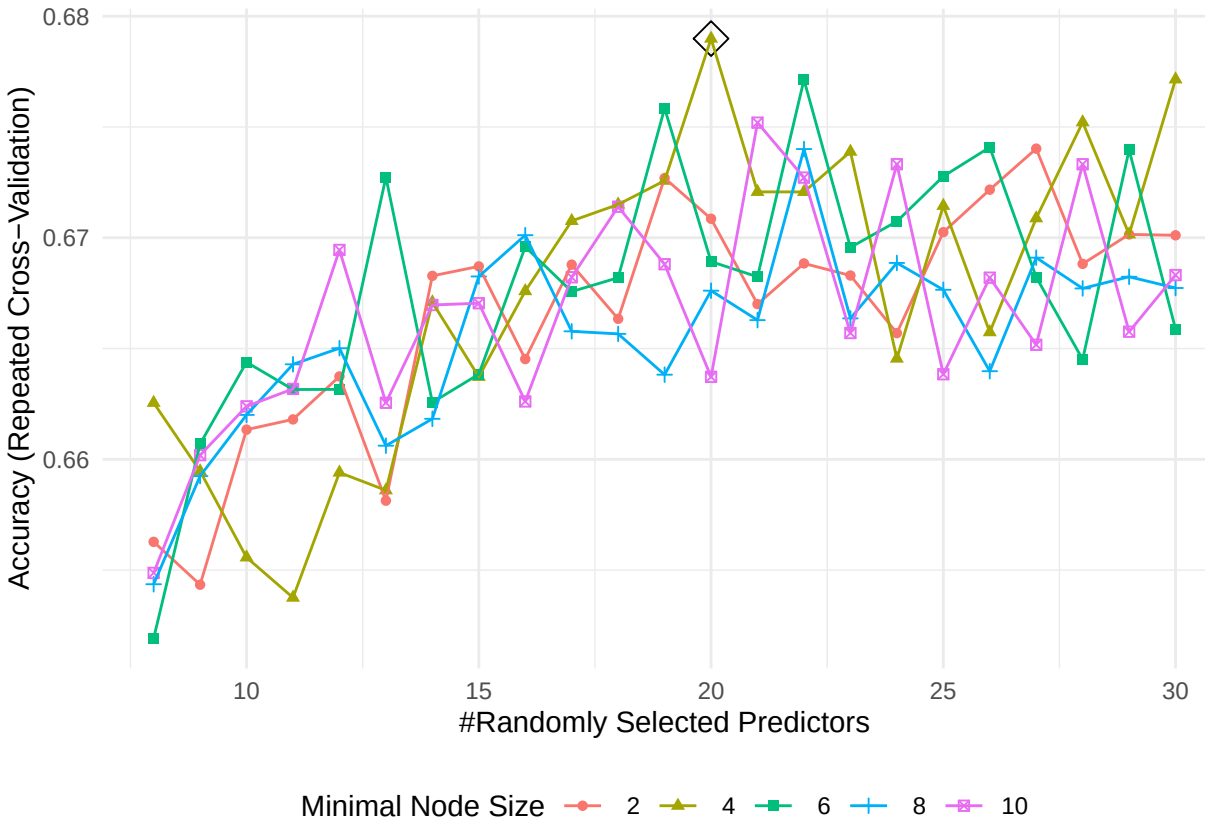


Classification trees

```
##           cp
## 36 0.05743262
```

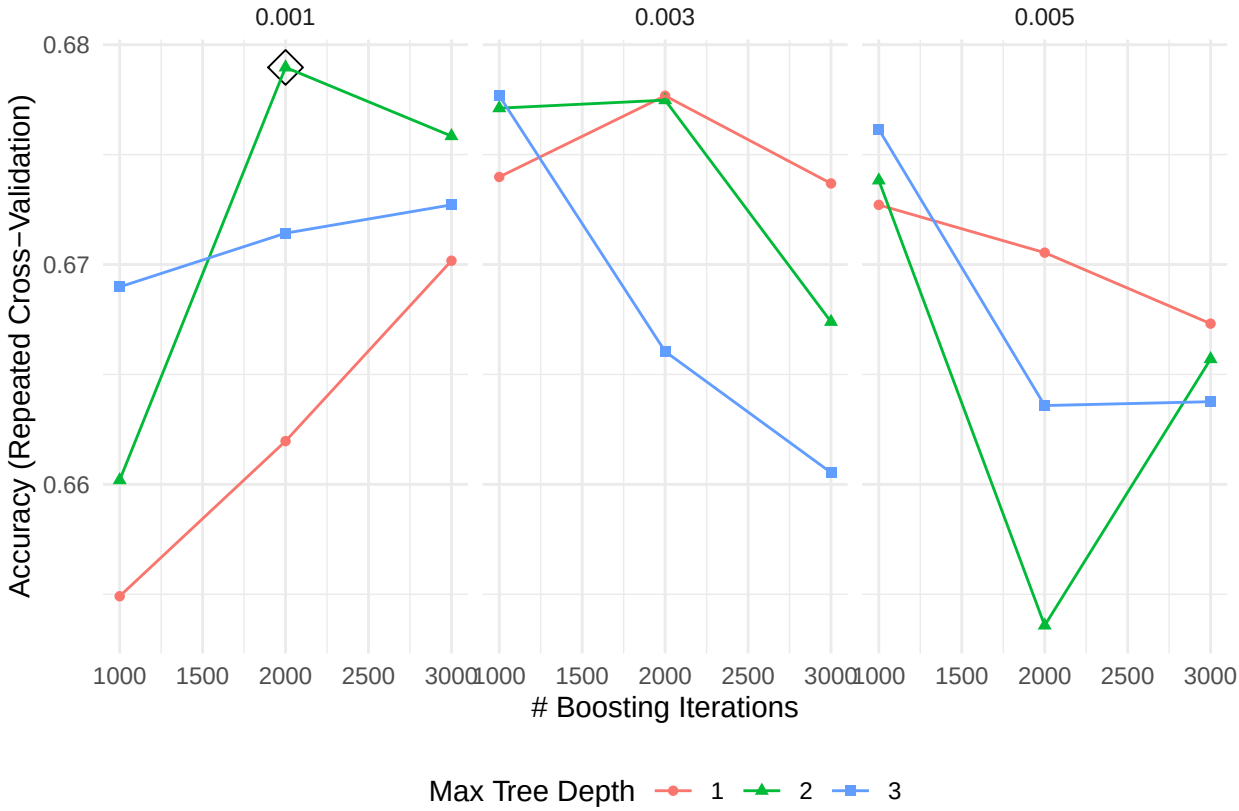



```
##    mincriterion
## 20    0.9770746
```

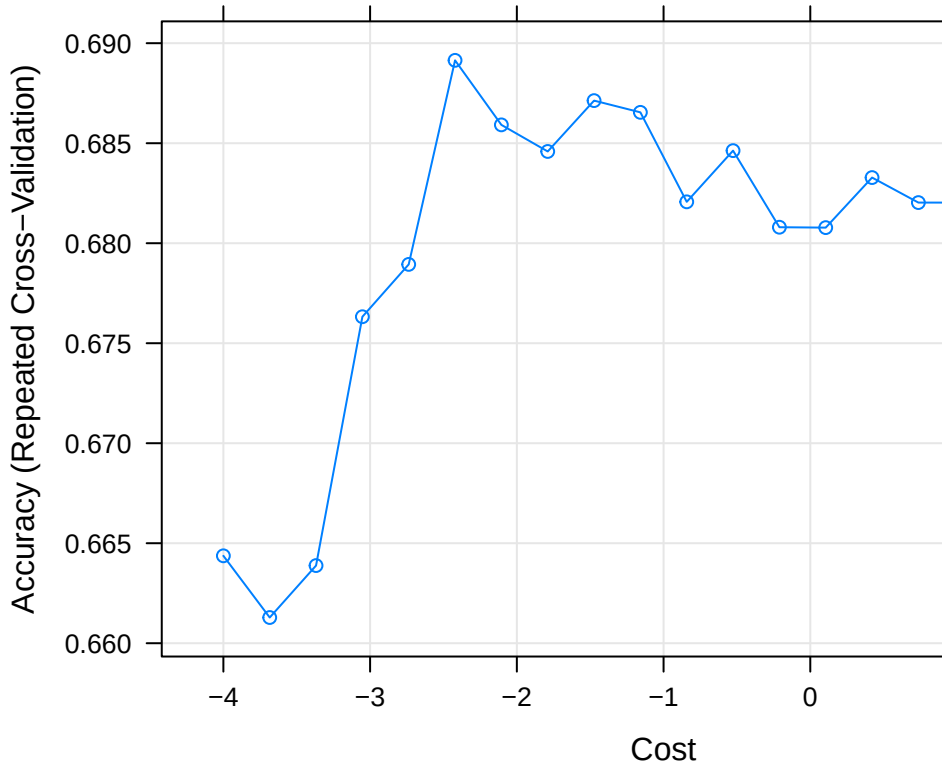


Random Forest

```
##    mtry splitrule min.node.size
## 62   20      gini             4
```

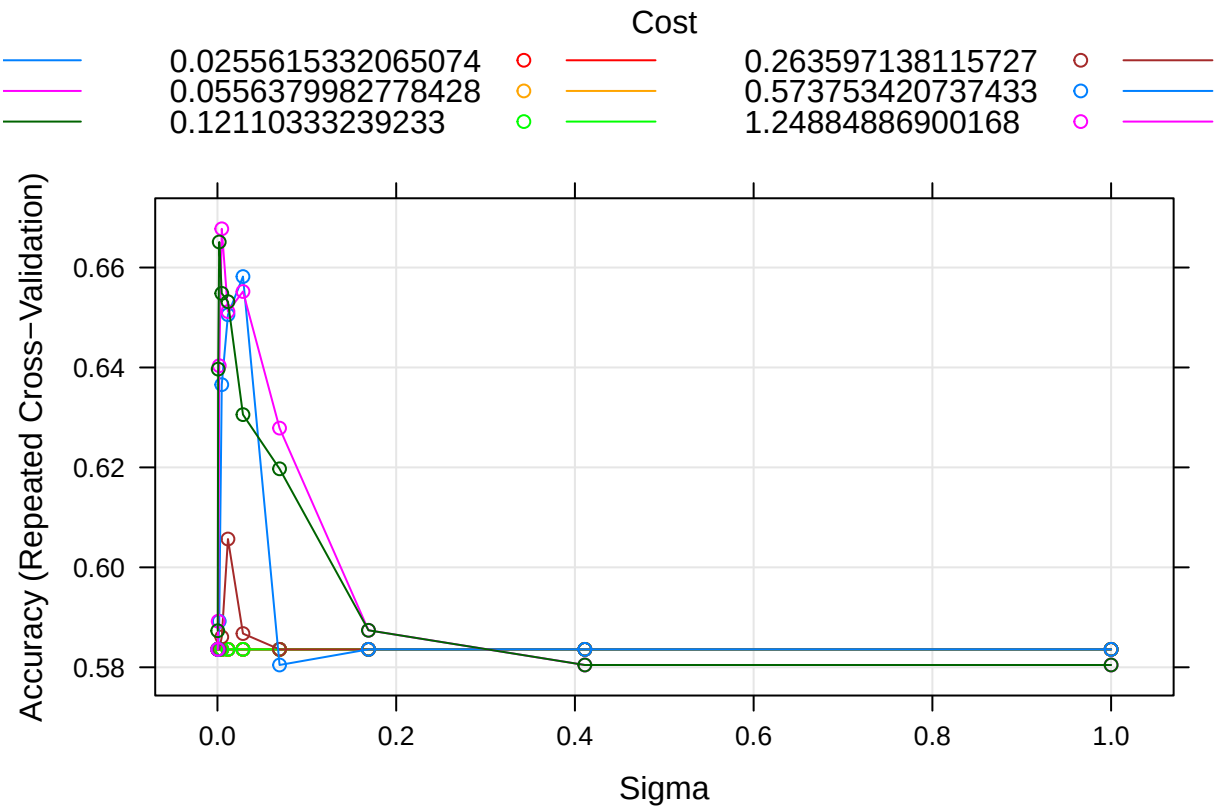

0.001
0.003
0.005
0.68
0.67
0.66
Accuracy (Repeated Cross−Validation)
1000
1500
2000
2500
3000
Boosting Iterations
Max Tree Depth
1
2
3

Adaboost



Suppport vector classifier and SVM

```
##           C
## 6 0.08882807
```




```
##         sigma        C
## 84 0.00482795 1.248849
```

Model comparison

```
##
## Call:
## summary.resamples(object = res)
##
## Models: GLM, GLMN, GAM, MARS, LDA, QDA, NB, RPART, CTREE, RF, GBM, SVML, SVMR
## Number of resamples: 50
##
## Accuracy
##            Min.   1st Qu.    Median      Mean   3rd Qu.      Max. NA's
## GLM   0.5312500 0.6129032 0.6774194 0.6731940 0.7187500 0.8064516    0
## GLMN  0.4375000 0.6385630 0.7096774 0.6916288 0.7479839 0.8125000    0
## GAM   0.5161290 0.6129032 0.6666667 0.6725122 0.7251420 0.8437500    0
## MARS  0.3750000 0.6588542 0.7096774 0.7080486 0.7681452 0.9032258    0
## LDA   0.5161290 0.6250000 0.6875000 0.6745424 0.7187500 0.8437500    0
## QDA   0.4062500 0.5937500 0.6507056 0.6408242 0.7096774 0.7812500    0
## NB    0.4516129 0.6250000 0.6824597 0.6636779 0.7164819 0.7812500    0
## RPART 0.4687500 0.6479335 0.6875000 0.6891691 0.7419355 0.8387097    0
## CTREE 0.4687500 0.6479335 0.6875000 0.6878788 0.7419355 0.8387097    0
## RF    0.4687500 0.6300403 0.6720430 0.6789889 0.7382698 0.8125000    0
## GBM   0.4687500 0.6385630 0.6875000 0.6789663 0.7382698 0.8125000    0
```

```
## SVML  0.5000000 0.6451613 0.6824597 0.6891428 0.7382698 0.9032258    0
## SVMR  0.4687500 0.6129032 0.6774194 0.6677517 0.7251420 0.8125000    0
##
## Kappa
##               Min.   1st Qu.    Median      Mean   3rd Qu.      Max. NA's
## GLM    0.01639344 0.2064202 0.3155899 0.3139664 0.4204590 0.6025641    0
## GLMN  -0.25764192 0.2000000 0.3505564 0.3162002 0.4464286 0.6016598    0
## GAM   -0.02649007 0.1877729 0.3178221 0.3168699 0.4372332 0.6638655    0
## MARS  -0.32780083 0.2785455 0.3793103 0.3773783 0.4998384 0.7991361    0
## LDA   -0.04966140 0.2174596 0.3368532 0.3096634 0.3967957 0.6551724    0
## QDA   -0.27731092 0.1712756 0.2634989 0.2465061 0.3829071 0.5447154    0
## NB    -0.18961625 0.1795621 0.2883951 0.2676388 0.3829071 0.5294118    0
## RPART -0.17241379 0.2146631 0.3313008 0.3275515 0.4392335 0.6652268    0
## CTREE -0.17241379 0.2146631 0.3313008 0.3246706 0.4392335 0.6652268    0
## RF    -0.17241379 0.2131148 0.3029540 0.3140537 0.4532212 0.6016598    0
## GBM   -0.17241379 0.1953901 0.2950549 0.2922473 0.4258897 0.5807860    0
## SVML  -0.08936170 0.2428446 0.3171698 0.3404805 0.4371690 0.7947020    0
## SVMR  -0.20353982 0.1402869 0.2757009 0.2566076 0.3943617 0.5807860    0
```