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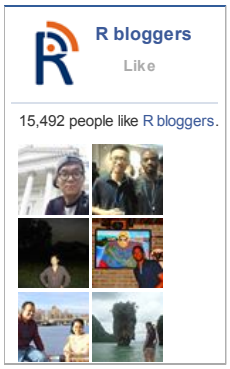

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caretEnsemble Classification example

March 16, 2013
By Zachary Mayer

(This article was first published on **Modern Toolmaking**, and kindly contributed to R-bloggers)

Here's a quick demo of how to fit a binary classification model with caretEnsemble. Please note that I haven't spent as much time debugging caretEnsemble for classification models, so there's probably more bugs than my last post. Also note that multi class models are not yet supported.

```
#Setup
rm(list = ls(all = TRUE))
gc(reset=TRUE)
set.seed(1234) #From random.org

#Libraries
library(caret)
library(devtools)
install_github('caretEnsemble', 'zachmayer') #
library(caretEnsemble)

#Data
library(mlbench)
dat <- mlbench.xor(500, 2)
X <- data.frame(dat$x)
Y <- factor(ifelse(dat$classes=='1', 'Yes', 'N

#Split train/test
train <- runif(nrow(X)) <= .66

#Setup CV Folds
#returnData=FALSE saves some space
folds=5
repeats=1
myControl <- trainControl(method='cv', number=
                          returnResamp='none',
                          returnData=FALSE, sa
                          verboseIter=TRUE, al
                          summaryFunction=twoC
                          index=createMultiFol
PP <- c('center', 'scale')

#Train some models
model1 <- train(X[train,], Y[train], method='g
```

```
                tuneGrid=expand.grid(.n.trees=
model2 <- train(X[train,], Y[train], method='b
model3 <- train(X[train,], Y[train], method='p
model4 <- train(X[train,], Y[train], method='m
model5 <- train(X[train,], Y[train], method='k
model6 <- train(X[train,], Y[train], method='e
model7 <- train(X[train,], Y[train], method='g
model8 <- train(X[train,], Y[train], method='s
model9 <- train(X[train,], Y[train], method='g
model10 <- train(X[train,], Y[train], method='

#Make a list of all the models
all.models <- list(model1, model2, model3, mod
names(all.models) <- sapply(all.models, functi
sort(sapply(all.models, function(x) min(x$resu

#Make a greedy ensemble - currently can only u
greedy <- caretEnsemble(all.models, iter=1000L
sort(greedy$weights, decreasing=TRUE)
greedy$error

#Make a linear regression ensemble
linear <- caretStack(all.models, method='glm',
linear$error

#Predict for test set:
library(caTools)
preds <- data.frame(sapply(all.models, functio
preds$ENS_greedy <- predict(greedy, newdata=X[
preds$ENS_linear <- predict(linear, newdata=X[
sort(data.frame(colAUC(preds, Y[!train])))
```

Demo2.R hosted with ❤ by GitHub view raw

Right now, this code fails for me if I try a model like a nnet or an SVM for stacking, so there's clearly bugs to fix.

The greedy model relies 100% on the gbm, which makes sense as the gbm has an AUC of 1 on the training set. The linear model uses all of the models, and achieves an AUC of .5. This is a little weird, as the gbm, rf, SVN, and knn all achieve an AUC of close to 1.0 on the training set, and I would have expected the linear model to focus on these predictions. I'm not sure if this is a bug, or a failure of my stacking model.

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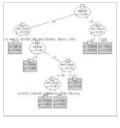
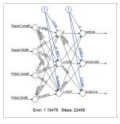


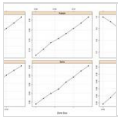
A question of model uncertainty

It has been several months since my last post on classification tree models, because two things have been consuming all of my spare time. ...



Cheat sheet for prediction and classification models in R

Ricky Ho has created a reference a 6-page PDF reference card on Big Data Machine Learning , with examples implemented in the R language. ...



Equivocal Zones

In Chapter 11, equivocal zones were briefly discussed. The idea is that some classification errors are close to the probability boundary (i.e. 50% for ...

Comments are closed.

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