

auditor

DIAGNOSTYKA MODELI UCZENIA MASZYNOWEGO



**Wydział Matematyki
i Nauk Informatycznych**

POLITECHNIKA WARSZAWSKA

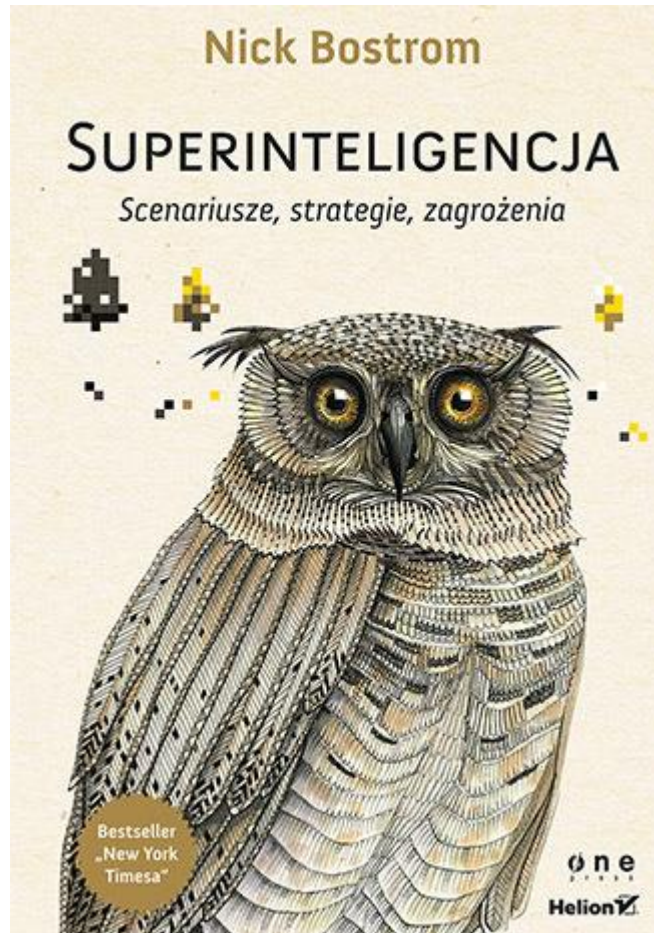


Alicja Gosiewska

Warszawskie Spotkania Entuzjastów R

11.10.2018, Warszawa

NIEDOKOŃCZONA BAJKA O WRÓBLACH



?



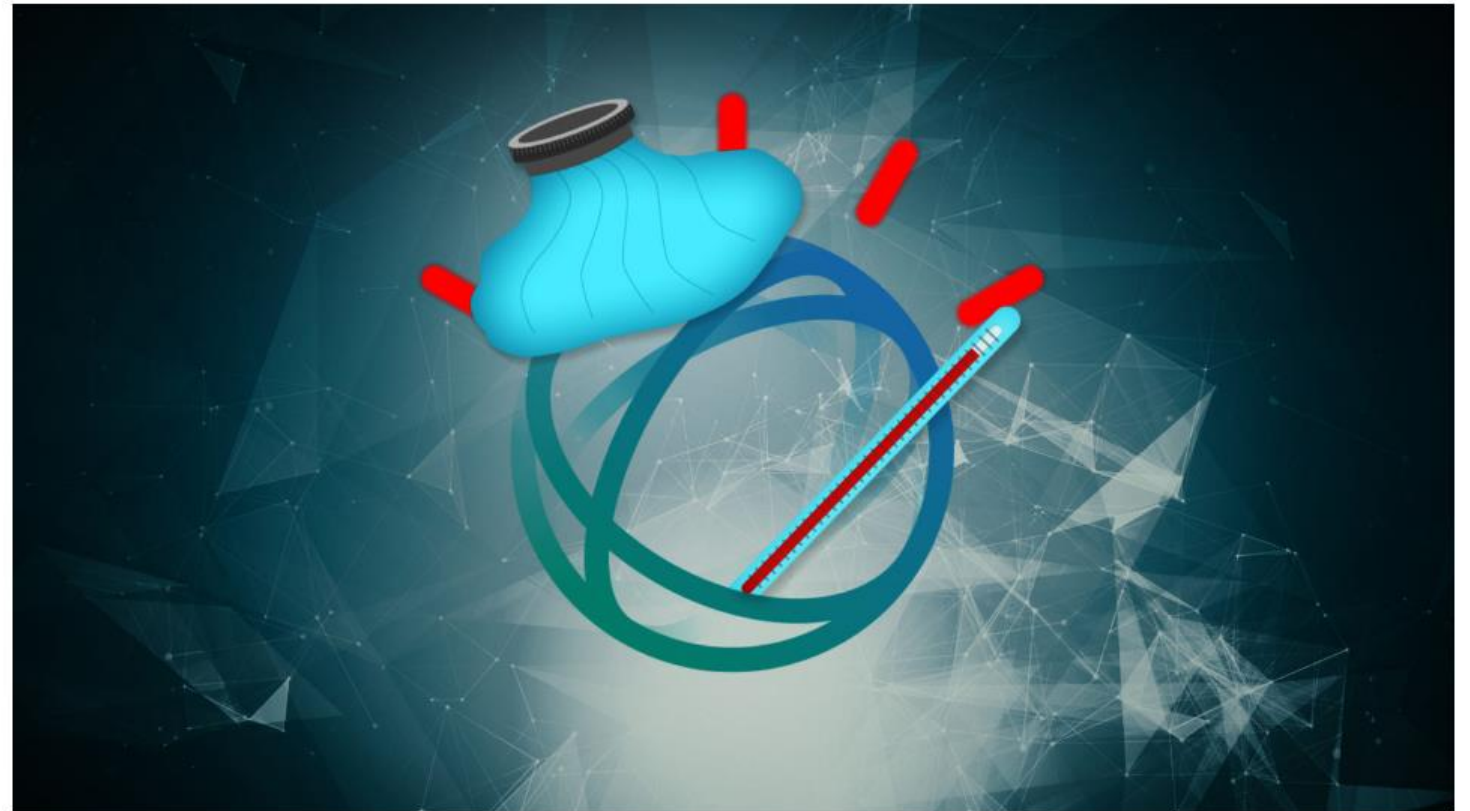
IBM Watson

EXCLUSIVE

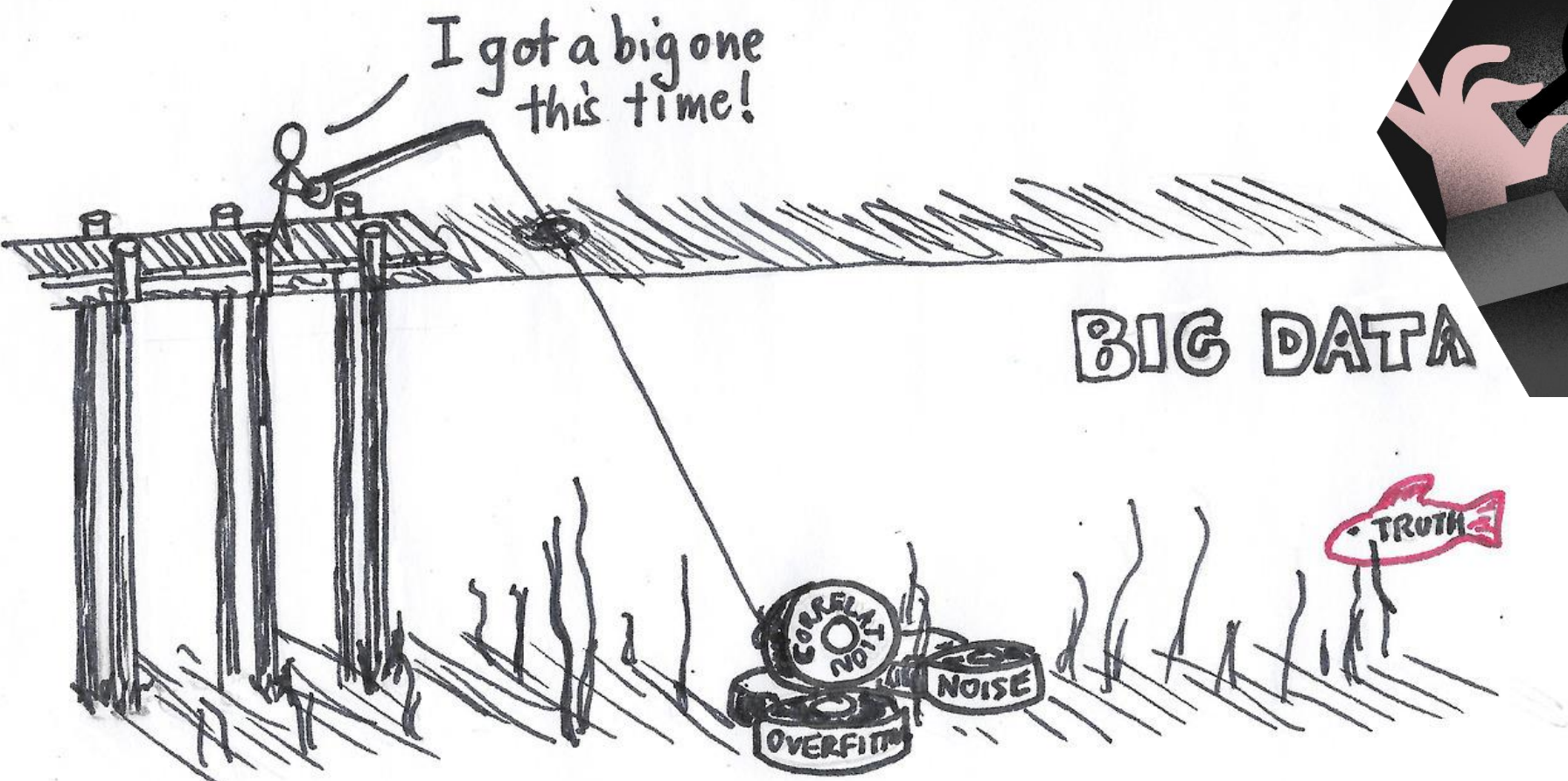
STAT+

IBM's Watson supercomputer recommended 'unsafe and incorrect' cancer treatments, internal documents show

By CASEY ROSS @caseymross and IKE SWETLITZ @ikeswetlitz / JULY 25, 2018





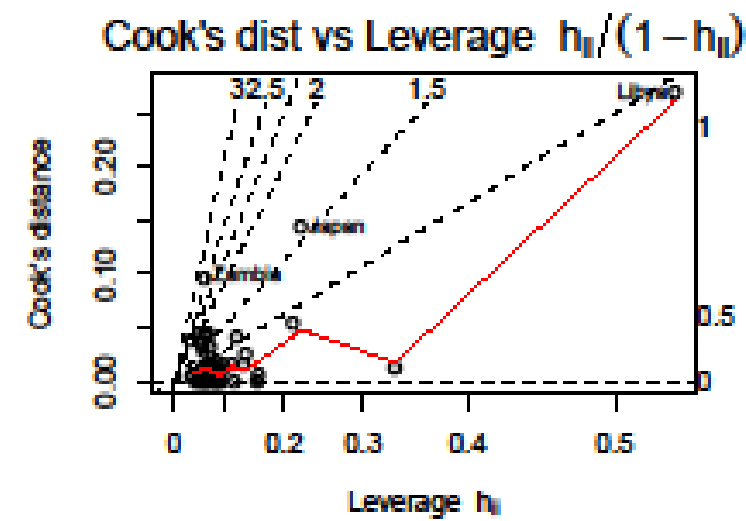
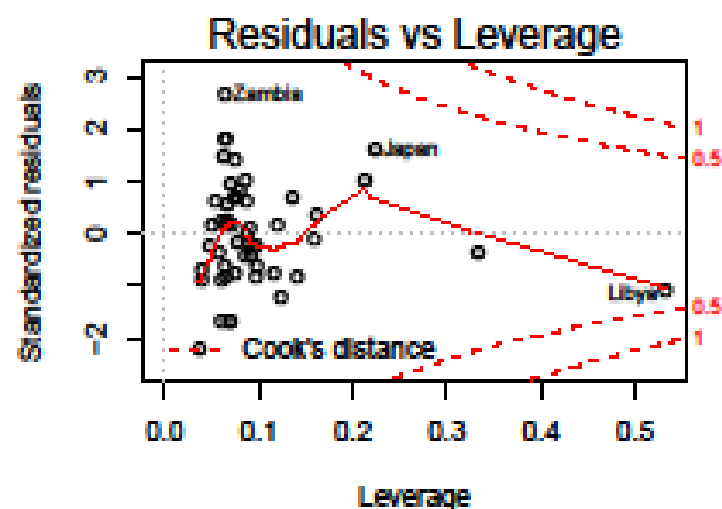
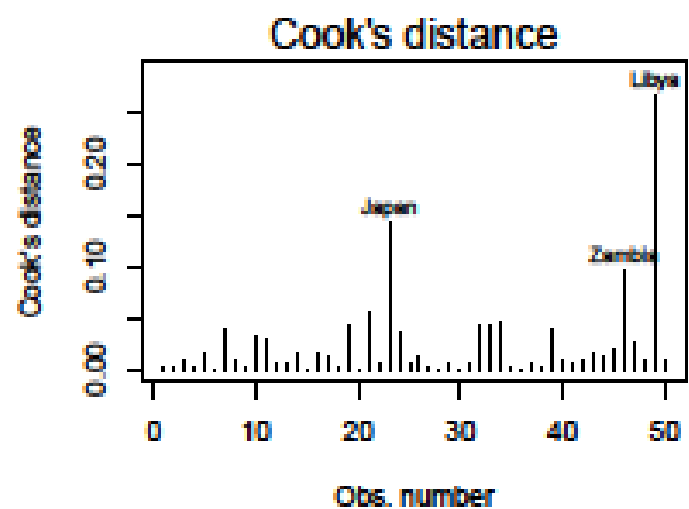
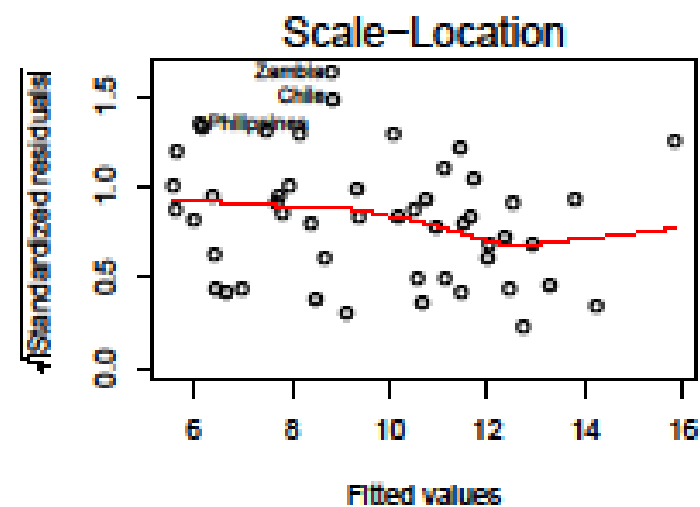
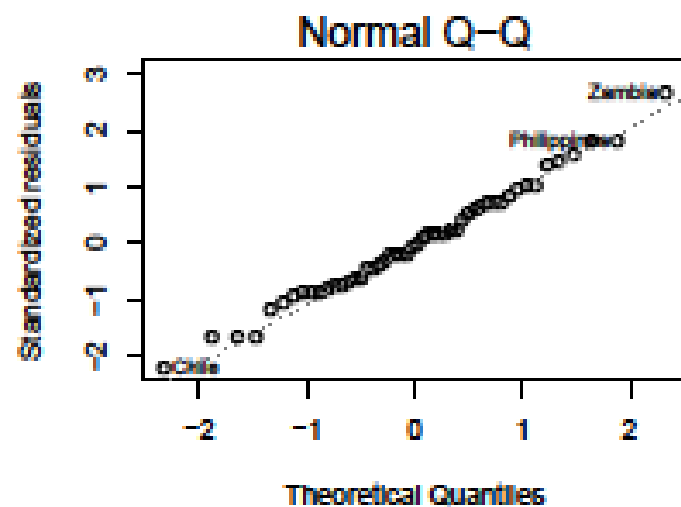
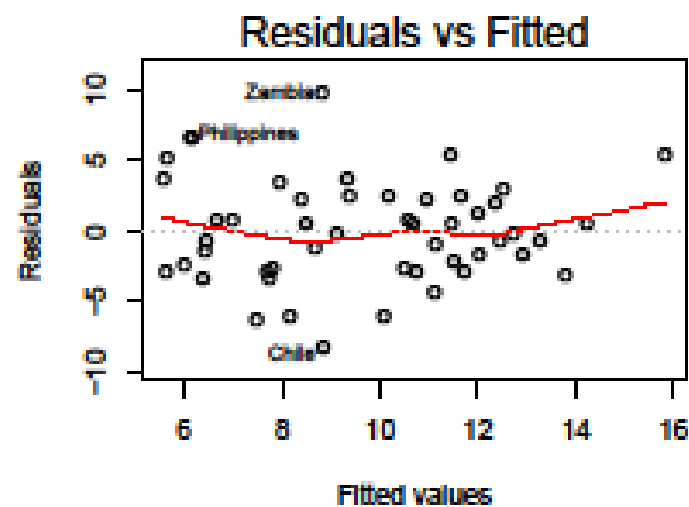


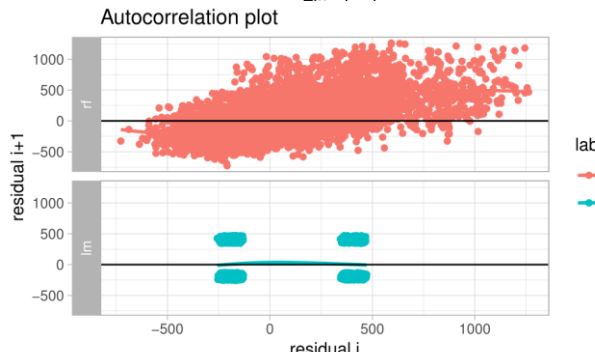
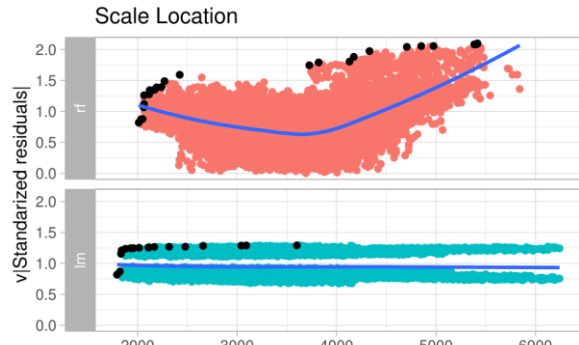
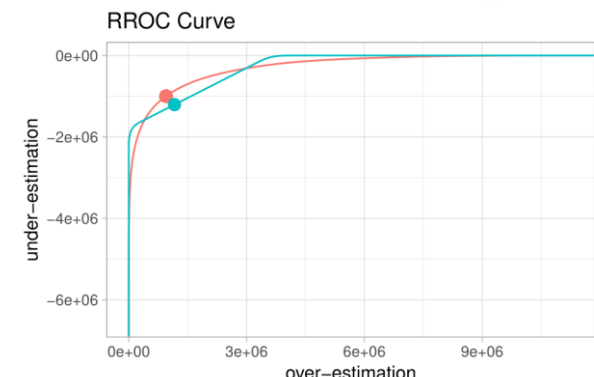
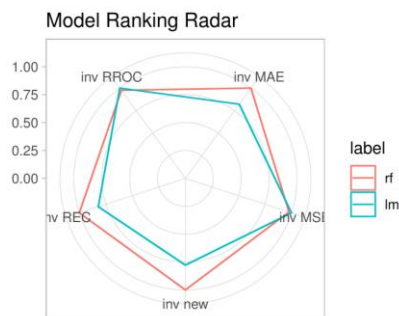
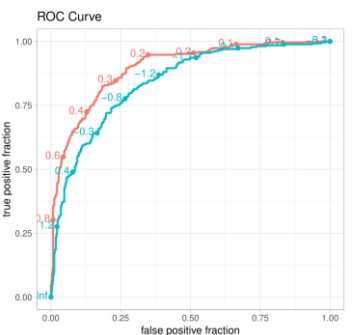
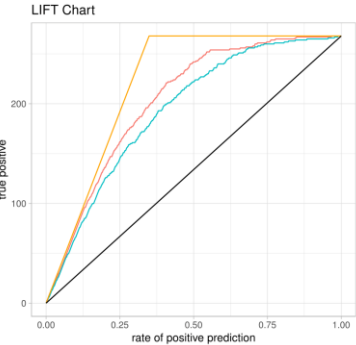
@redpenblackpen



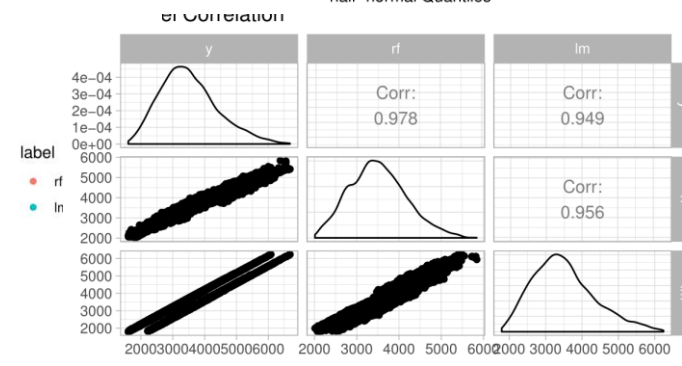
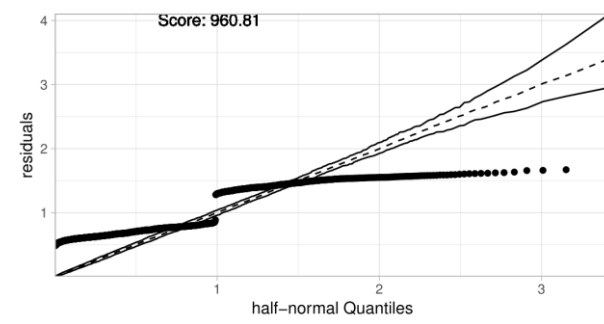
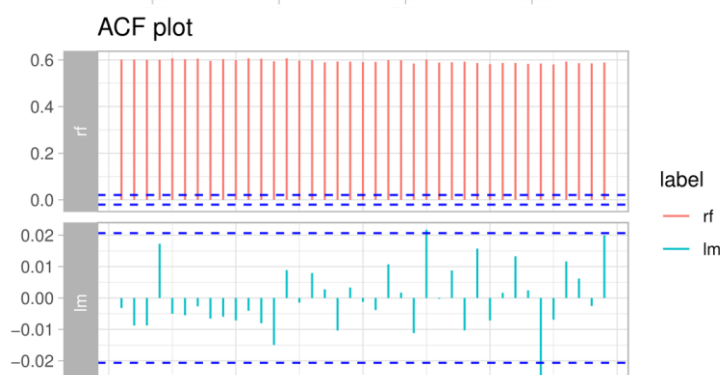
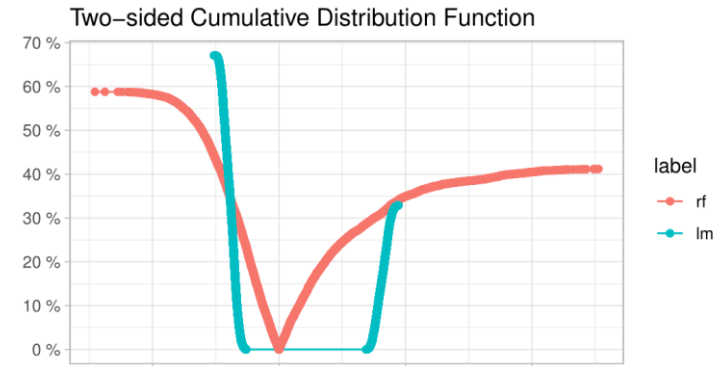
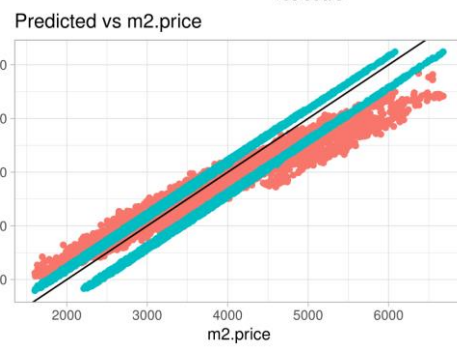
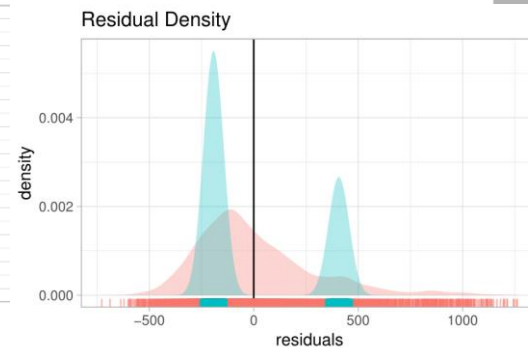
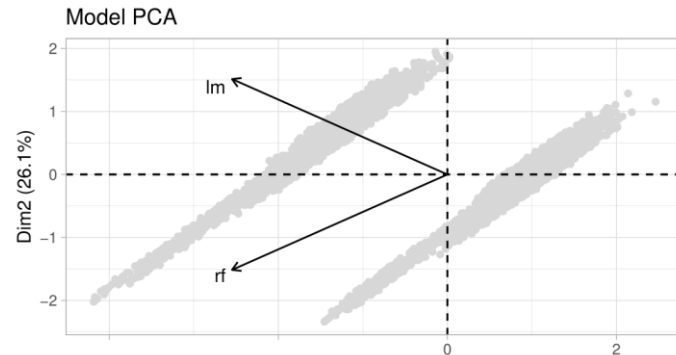
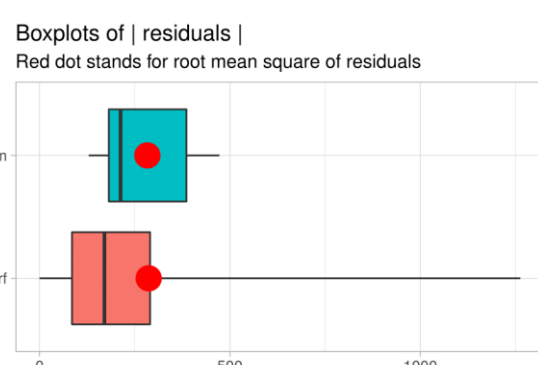
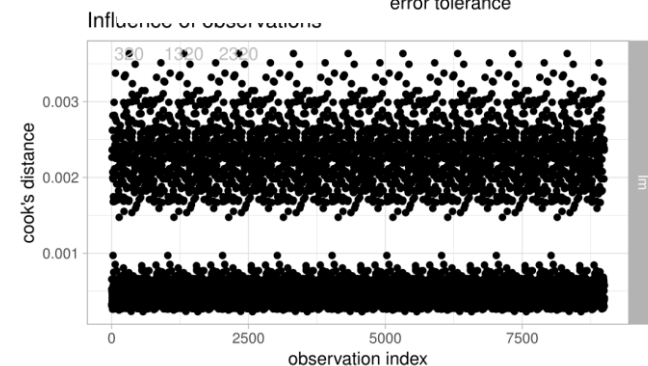
github.com/agosiewska/auditor_binder

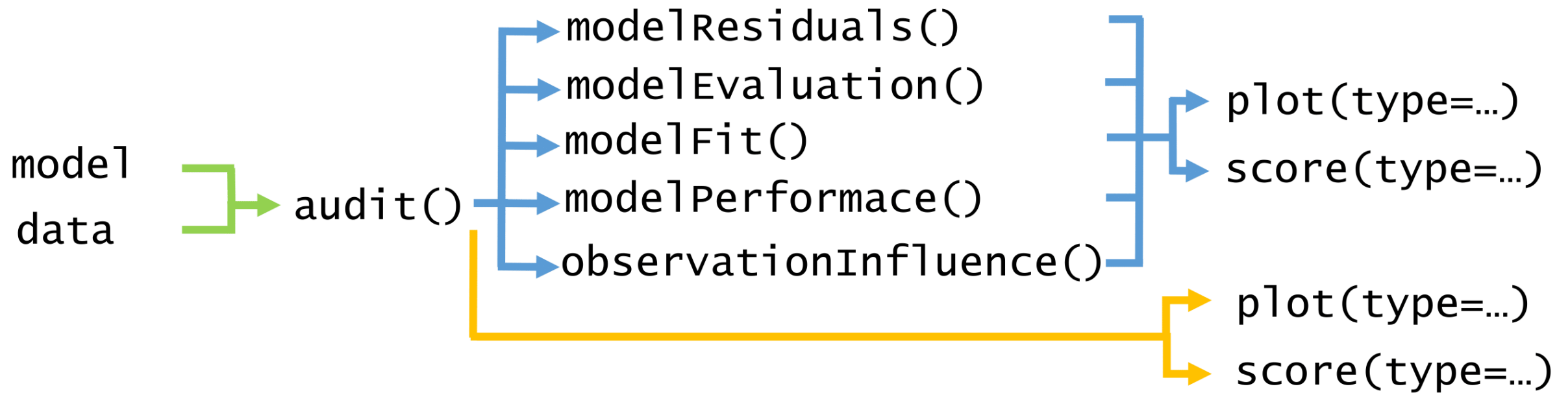
launch binder





name	label	score	scaled
MAE	rf	2.16e+02	1.000
MAE	lm	2.63e+02	0.821
MSE	rf	8.21e+04	1.000
MSE	lm	8.01e+04	1.025
REC	rf	2.16e+02	1.000
REC	lm	2.63e+02	0.821
RROC	rf	3.32e+12	1.000
RROC	lm	3.24e+12	1.024
new	rf	1.51e+18	1.000
new	lm	1.94e+18	0.777





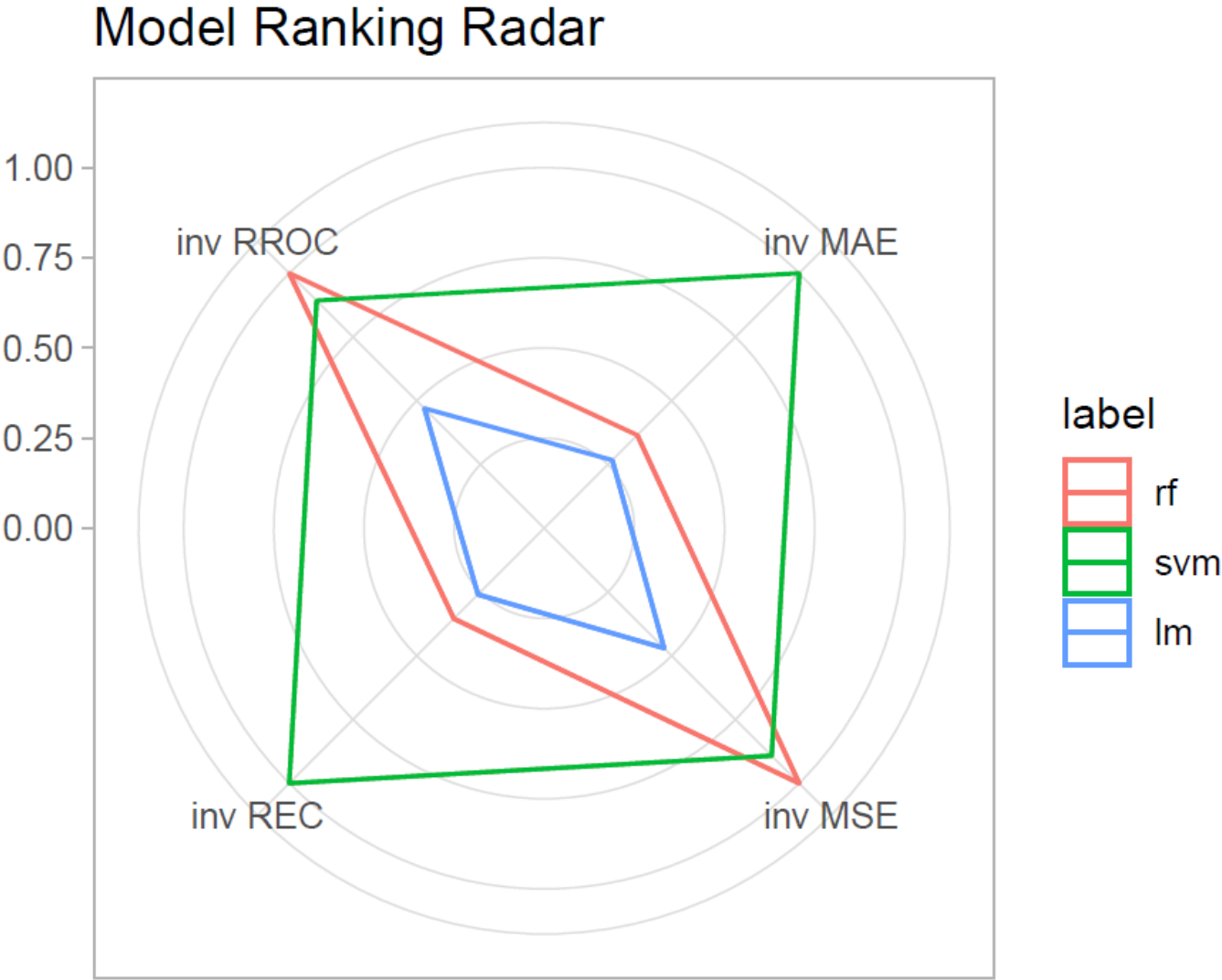
```
model_rf <- randomForest(y~., auditorData)
```

```
au_rf <- audit(model_rf, data = auditorData, y = auditorData$y, label = "rf")
```

```
mp_rf <- modelPerformance("au_rf")  
plot(mp_rf, type = "ModelRanking")
```

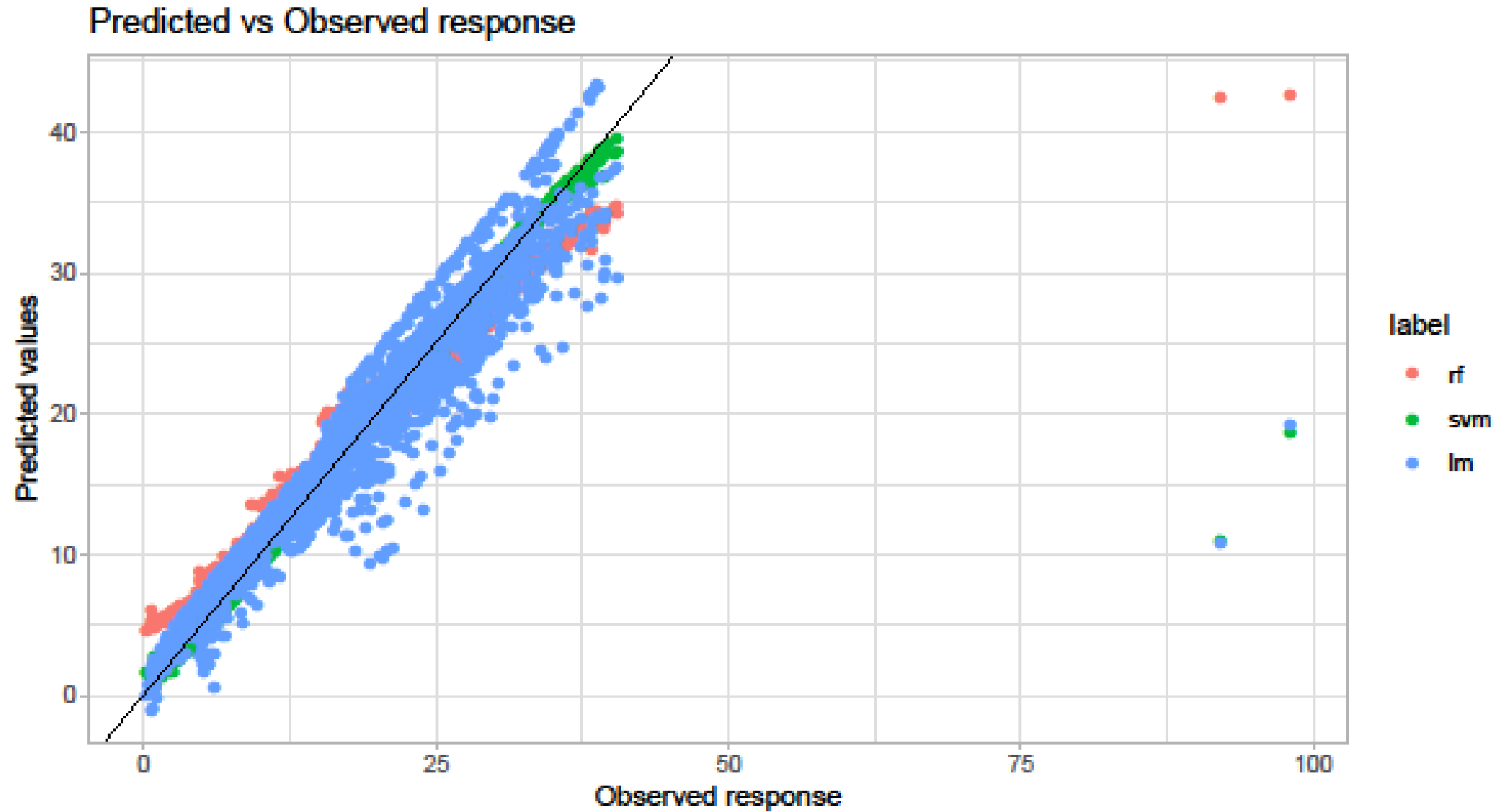
```
plot(au_rf, type = "ResidualDensity")
```

```
plot(au_rf, au_svm, au_lm, type = "ModelRanking")
```

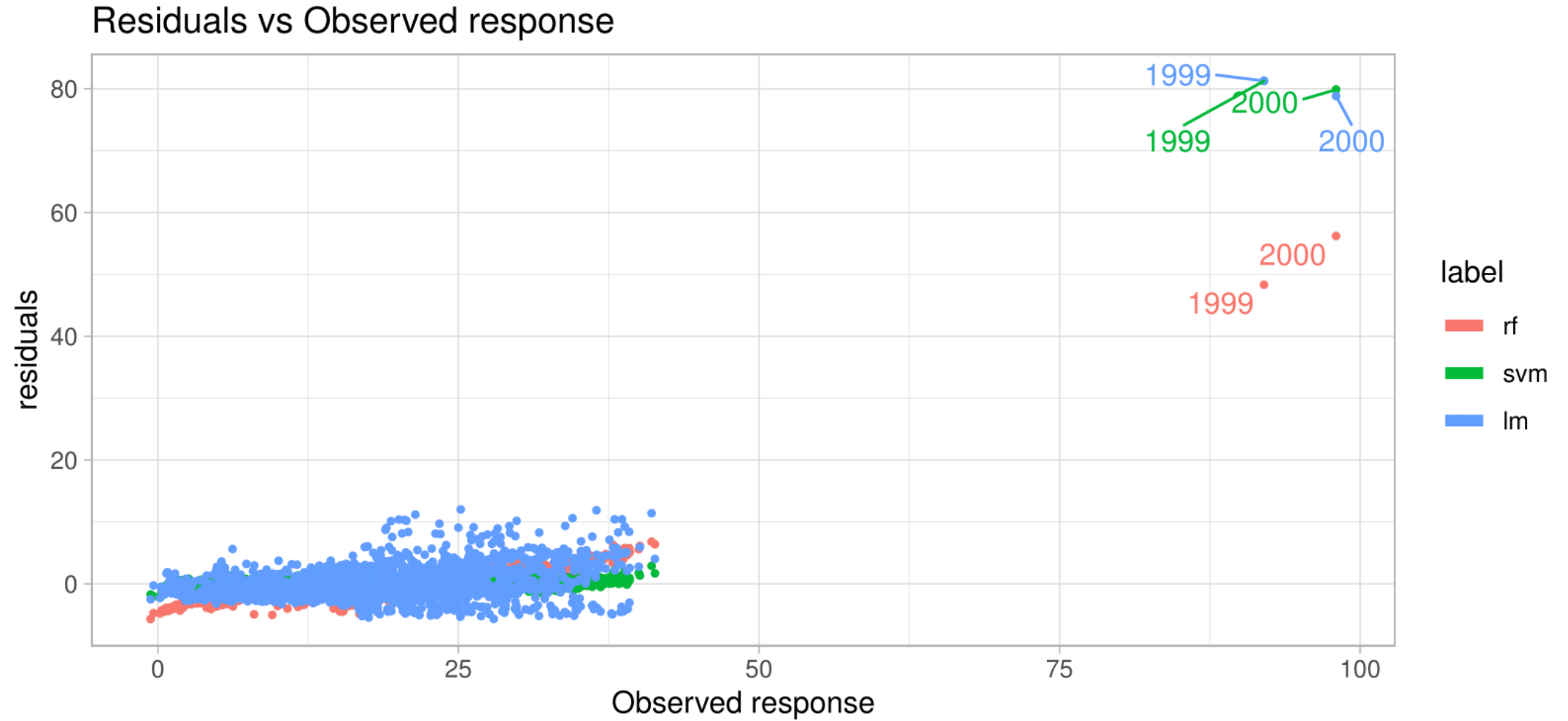


name	label	score	scaled
MAE	rf	1.49e+00	1.000
MAE	svm	5.43e-01	2.741
MAE	lm	2.03e+00	0.732
MSE	rf	6.09e+00	1.000
MSE	svm	6.83e+00	0.892
MSE	lm	1.30e+01	0.470
REC	rf	1.47e+00	1.000
REC	svm	5.23e-01	2.820
REC	lm	2.01e+00	0.733
RROC	rf	1.22e+07	1.000
RROC	svm	1.36e+07	0.893
RROC	lm	2.59e+07	0.470

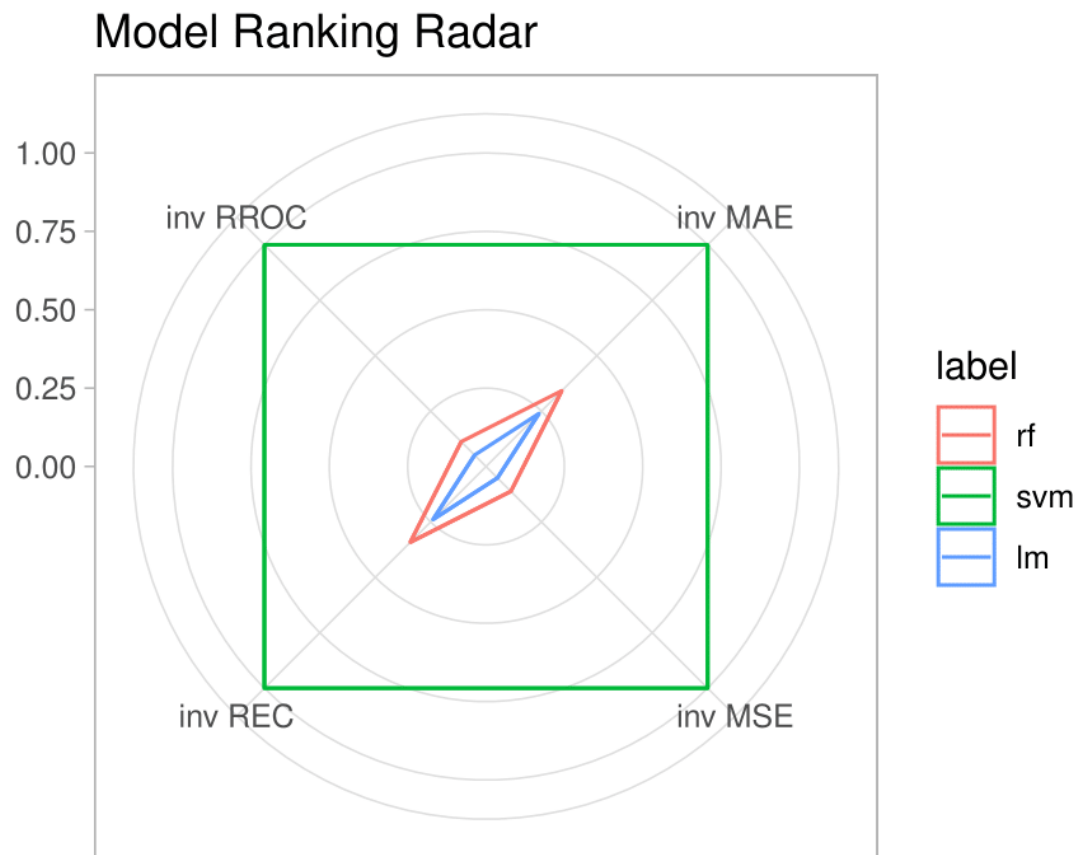
```
plot(au_rf, au_svm, au_lm, type = "Prediction", variable = "y")
```



```
plot(au_rf, au_svm, au_lm, type = "Residual", variable = "y", nlabel = 6)
```

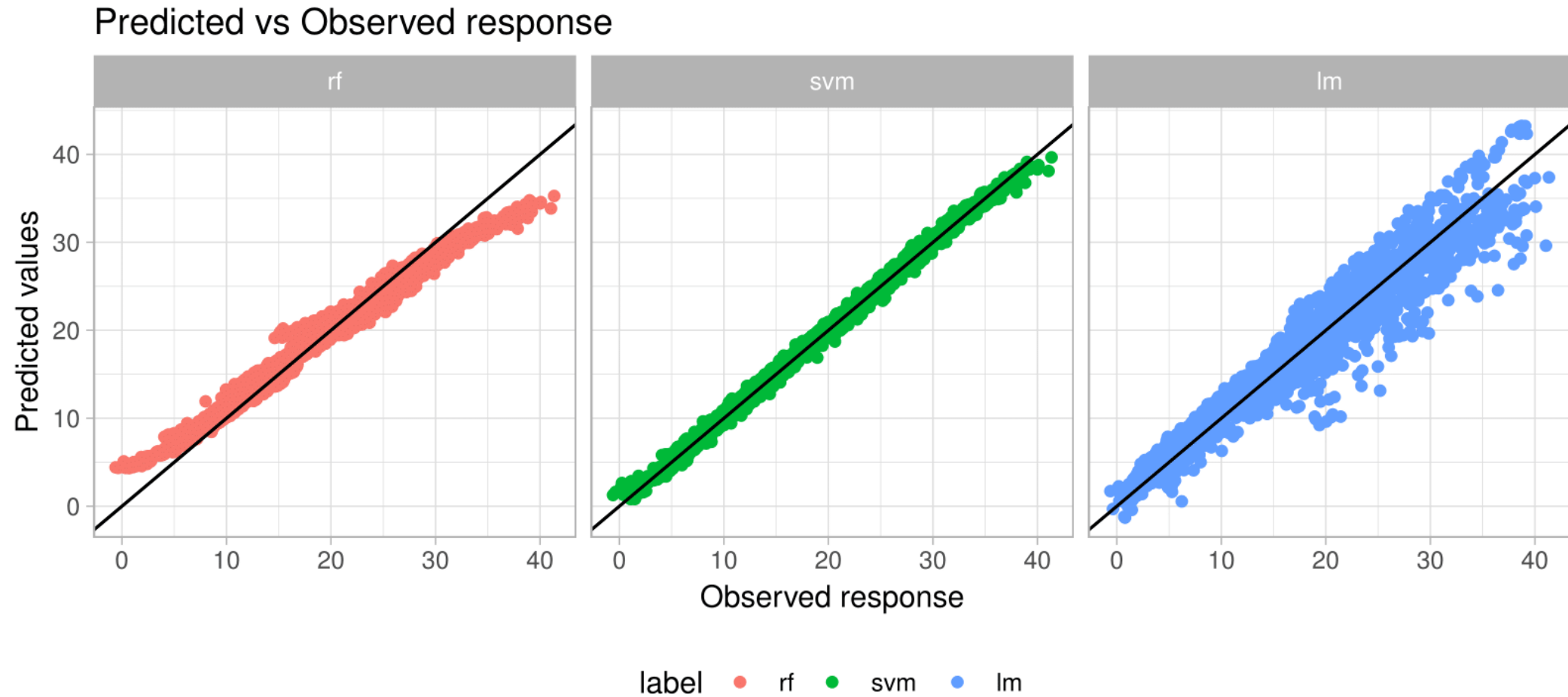



```
plot(au_rf, au_svm, au_lm, type = "ModelRanking")
```



name	label	score	scaled
MAE	rf	1.35e+00	1.000
MAE	svm	4.62e-01	2.924
MAE	lm	1.93e+00	0.699
MSE	rf	3.01e+00	1.000
MSE	svm	3.37e-01	8.930
MSE	lm	6.54e+00	0.460
REC	rf	1.35e+00	1.000
REC	svm	4.61e-01	2.924
REC	lm	1.93e+00	0.699
RROC	rf	6.01e+06	1.000
RROC	svm	6.72e+05	8.930
RROC	lm	1.31e+07	0.460

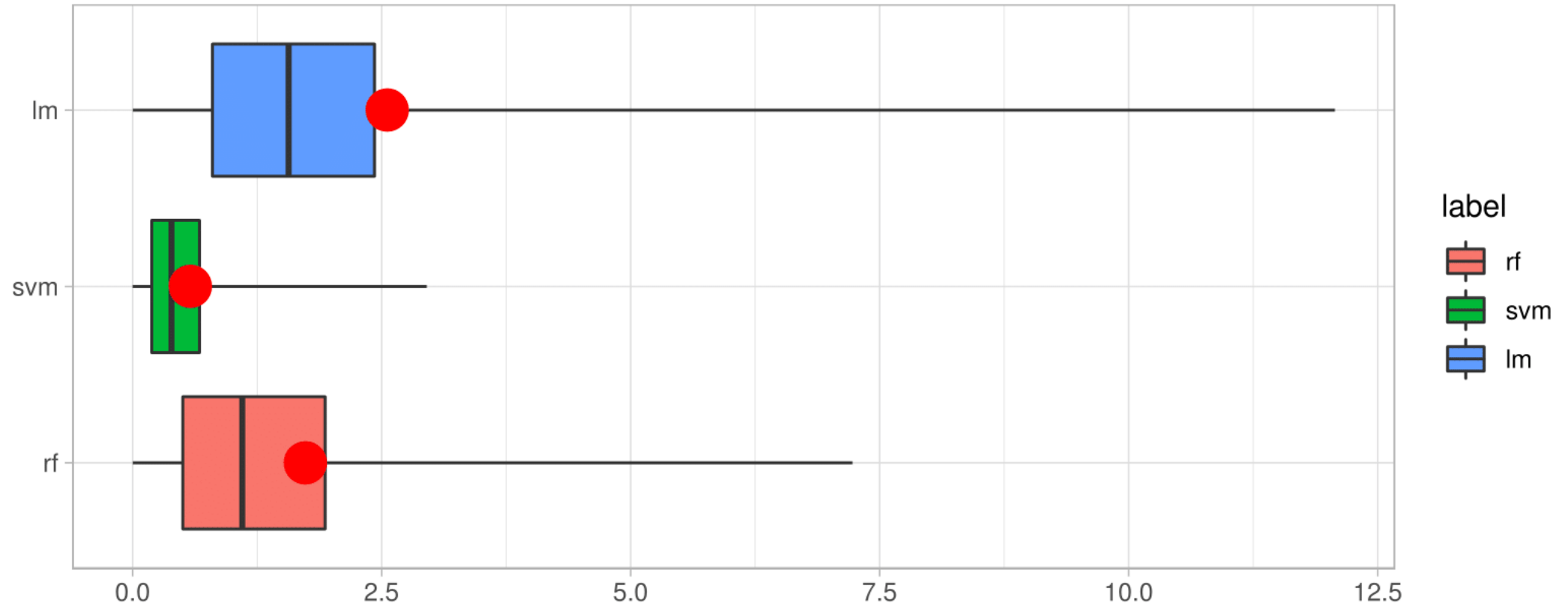
```
plot(au_rf, au_svm, au_lm,  
     type = "Prediction",  
     variable = "Observed response",  
     split = "model")
```



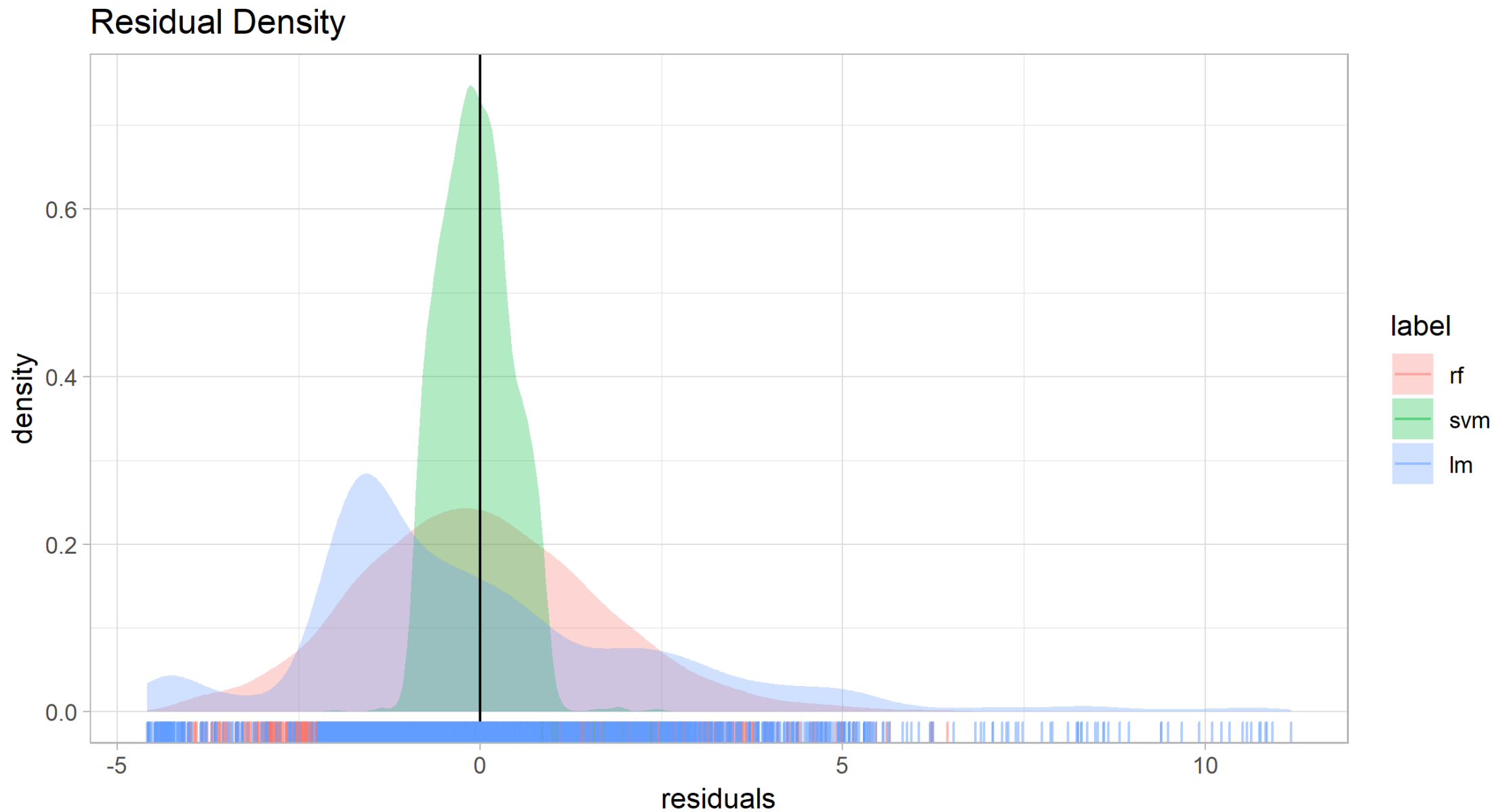
```
plot(au_rf, au_svm, au_lm, type = "ResidualBoxplot", split = "model")
```

Boxplots of | residuals |

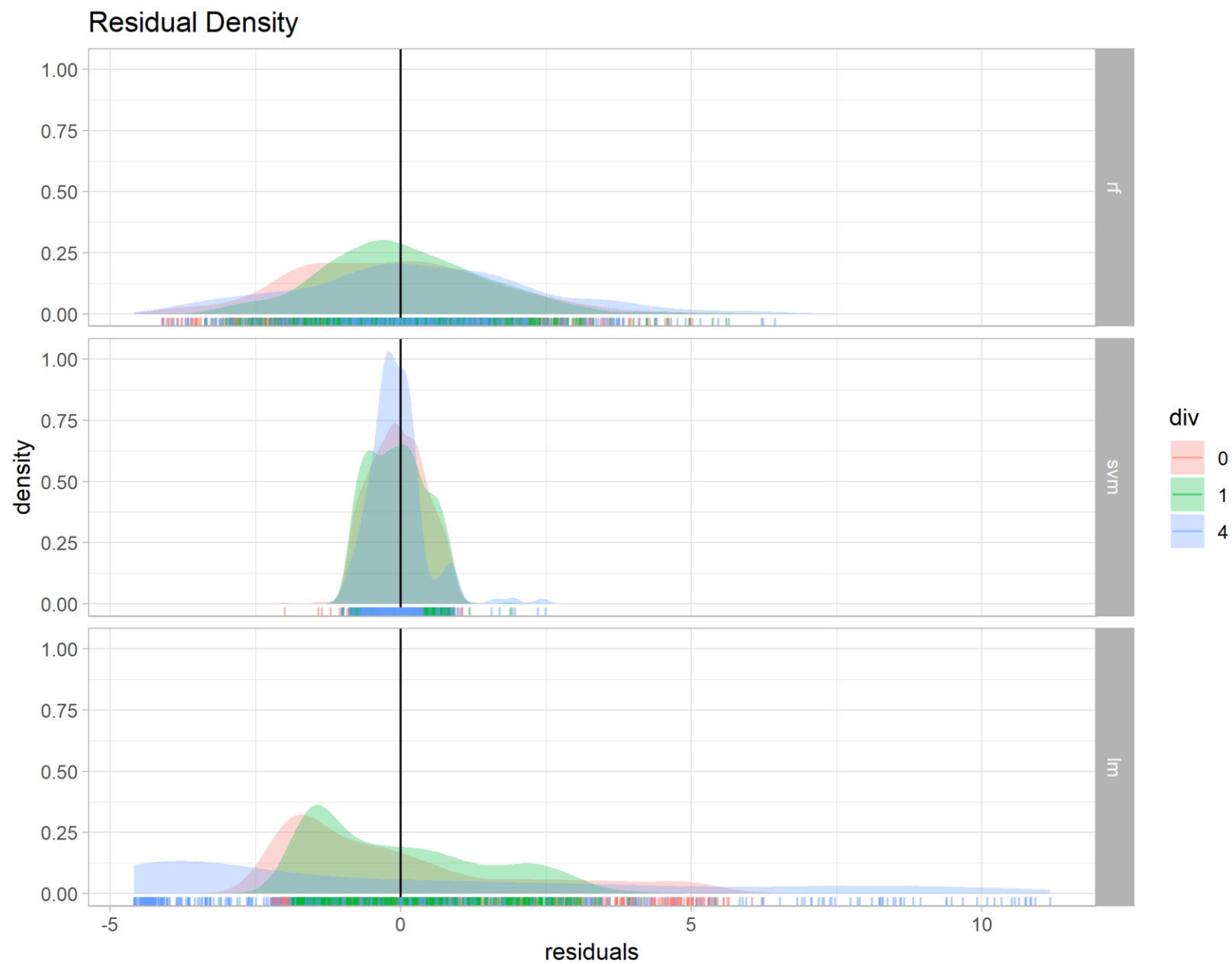
Red dot stands for root mean square of residuals

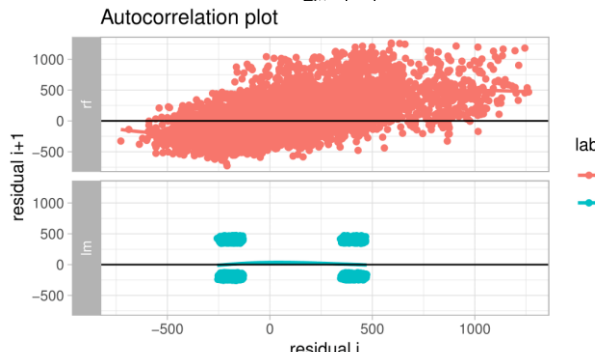
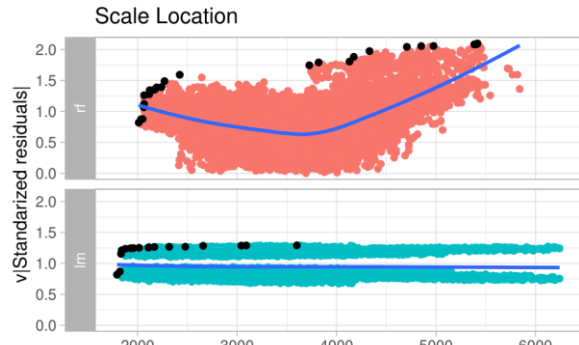
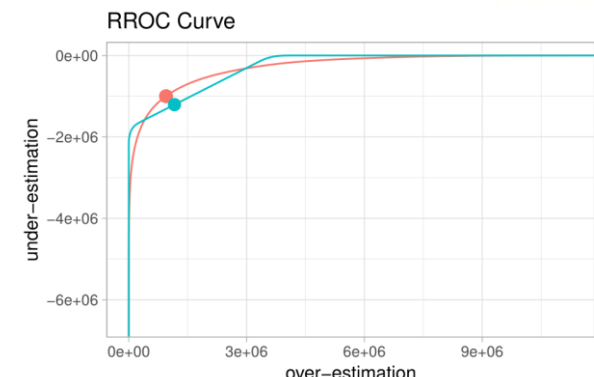
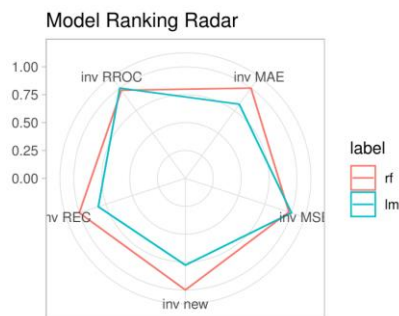
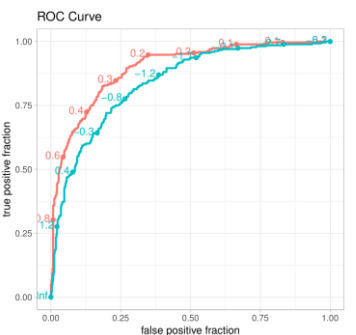
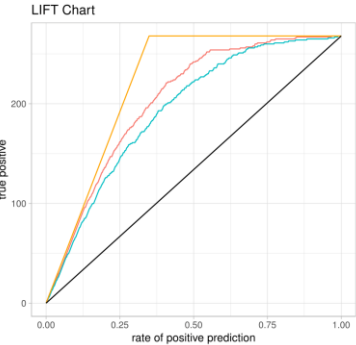


```
plot(au_rf, au_svm, au_lm, type = "ResidualDensity")
```

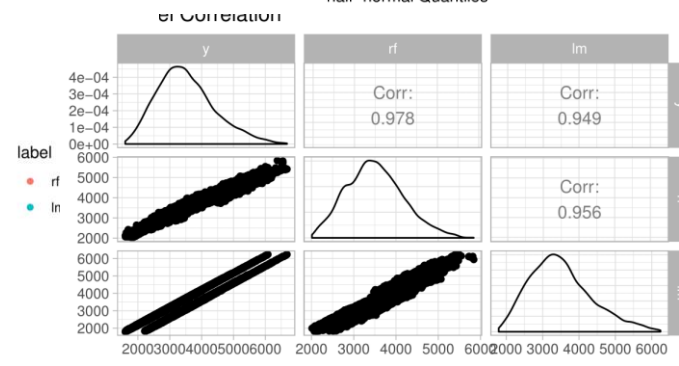
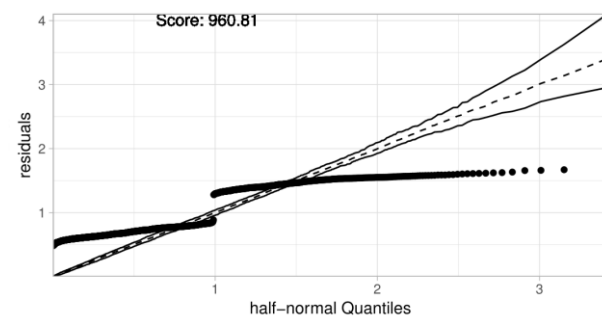
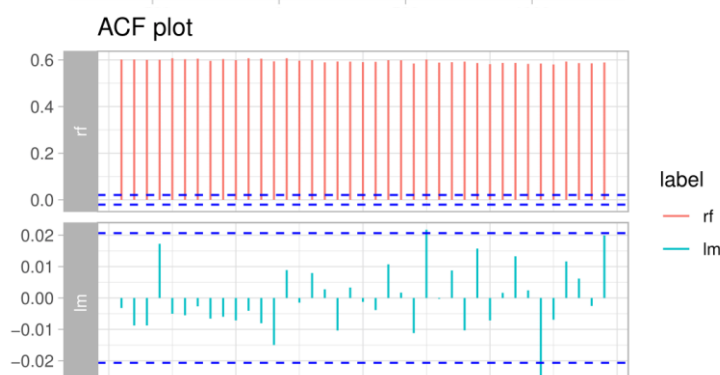
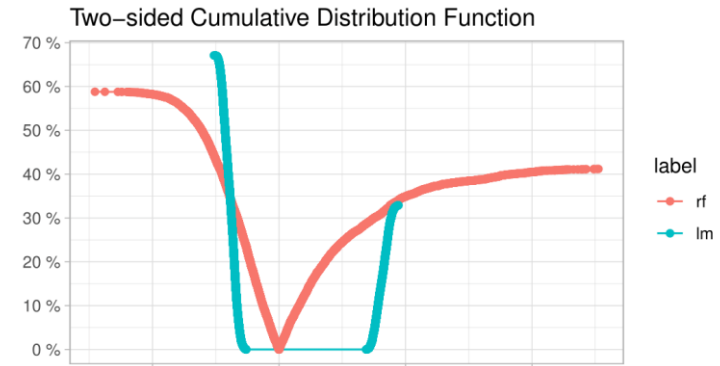
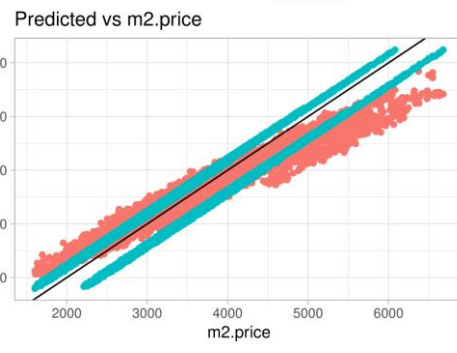
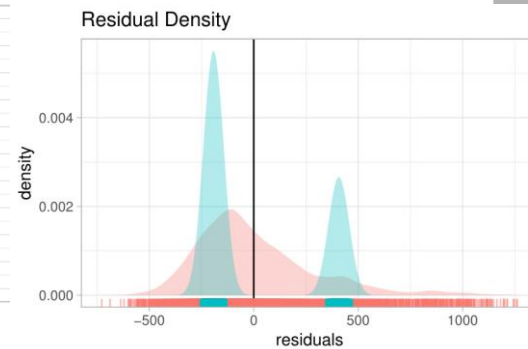
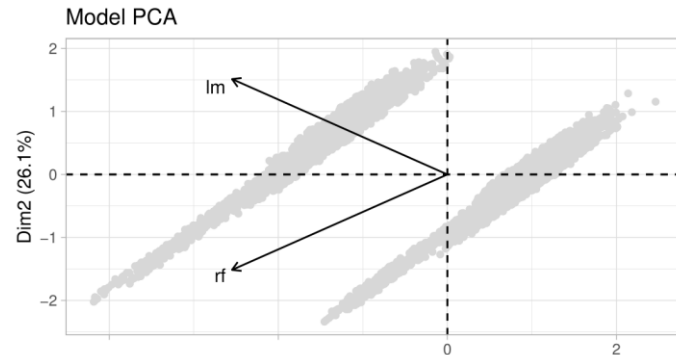
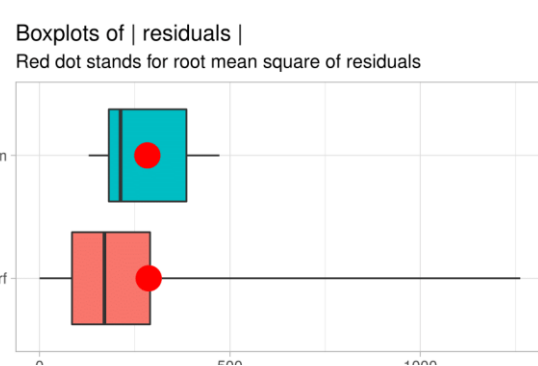
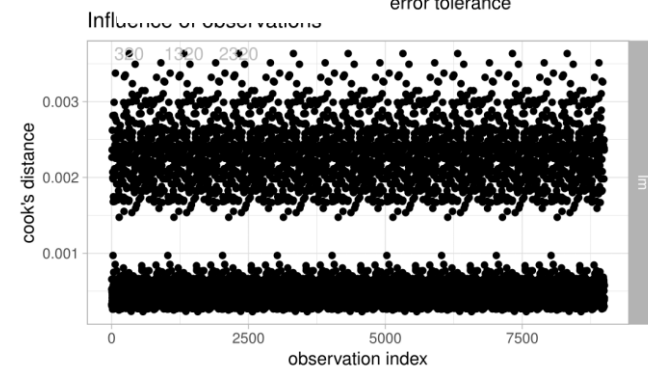


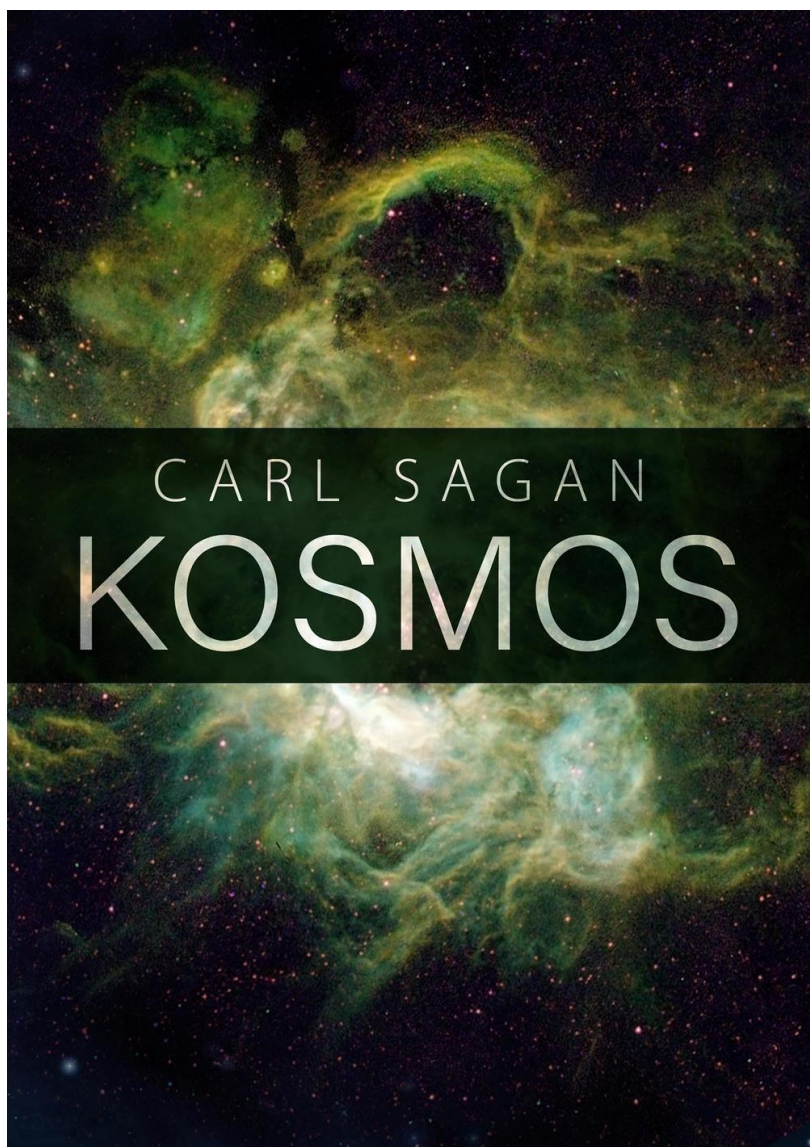

```
plot(au_rf, au_svm, au_lm, type = "ResidualDensity", variable = "x4")
```





name	label	score	scaled
MAE	rf	2.16e+02	1.000
MAE	lm	2.63e+02	0.821
MSE	rf	8.21e+04	1.000
MSE	lm	8.01e+04	1.025
REC	rf	2.16e+02	1.000
REC	lm	2.63e+02	0.821
RROC	rf	3.32e+12	1.000
RROC	lm	3.24e+12	1.024
new	rf	1.51e+18	1.000
new	lm	1.94e+18	0.777





Z okazji urodzin wszystkiego
najlepszego, spełnienia marzeń
i żebyś wygryzła sztuczną
inteligencję z rynku pracy.

Tomek i Dariusz

Warszawa 20.12.16

auditor

arXiv.org

auditor: an R Package for Model-Agnostic Visual Validation and Diagnostic

Alicja Gosiewska, Przemysław Biecek

<https://arxiv.org/abs/1809.07763v3>

GitHub

<https://github.com/MI2DataLab/auditor>

'NCN Opus grant 2016/21/B/ST6/02176'.

Alicja Gosiewska



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MI2 DataLab



<http://mi2.mini.pw.edu.pl>

<https://www.facebook.com/MI2DataLab>