Title: 9890 Project – IC500 Futures Intraday Data

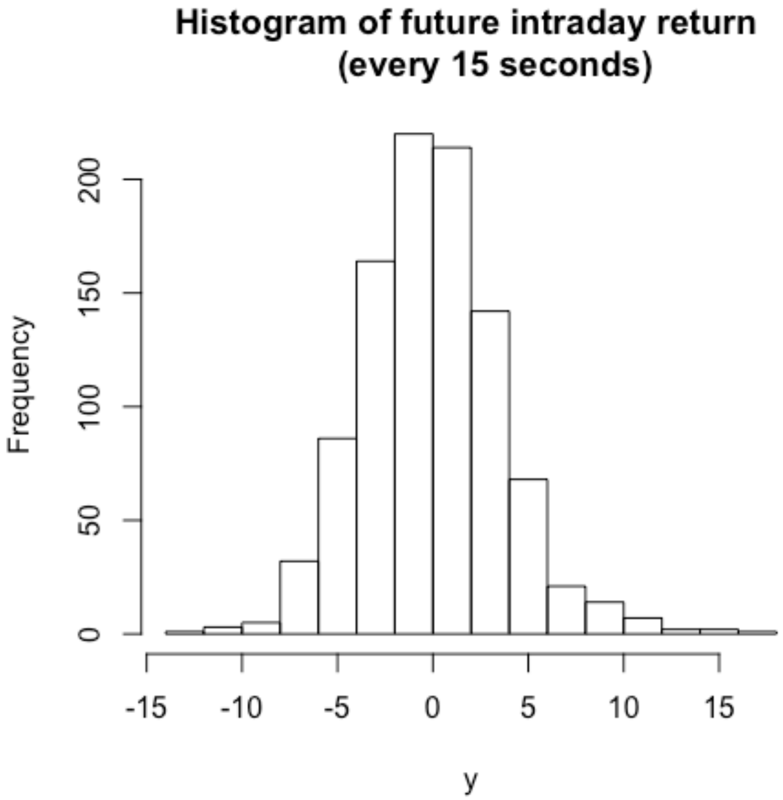
Name: Yang Wu

Github link: https://github.com/camille-wu/9890Project

Vimeo link: https://vimeo.com/420917188

Password: 9890

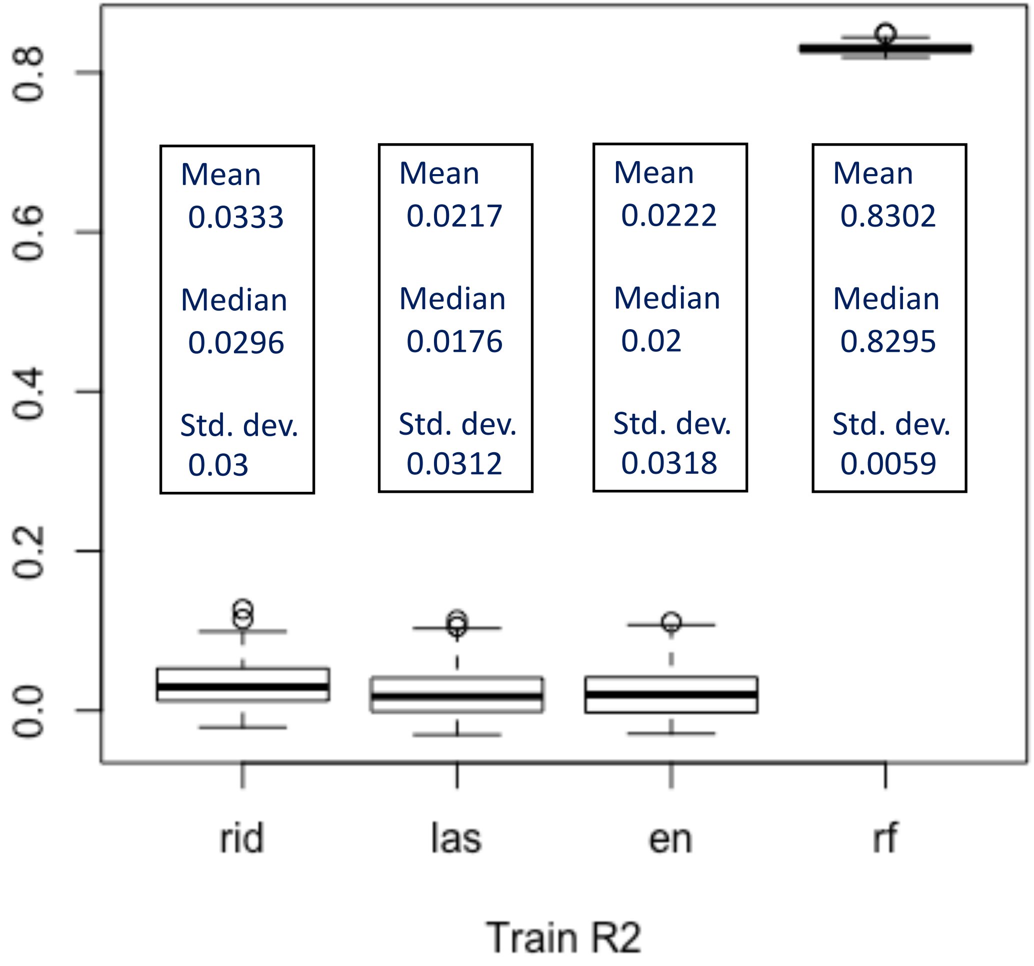
Data Description

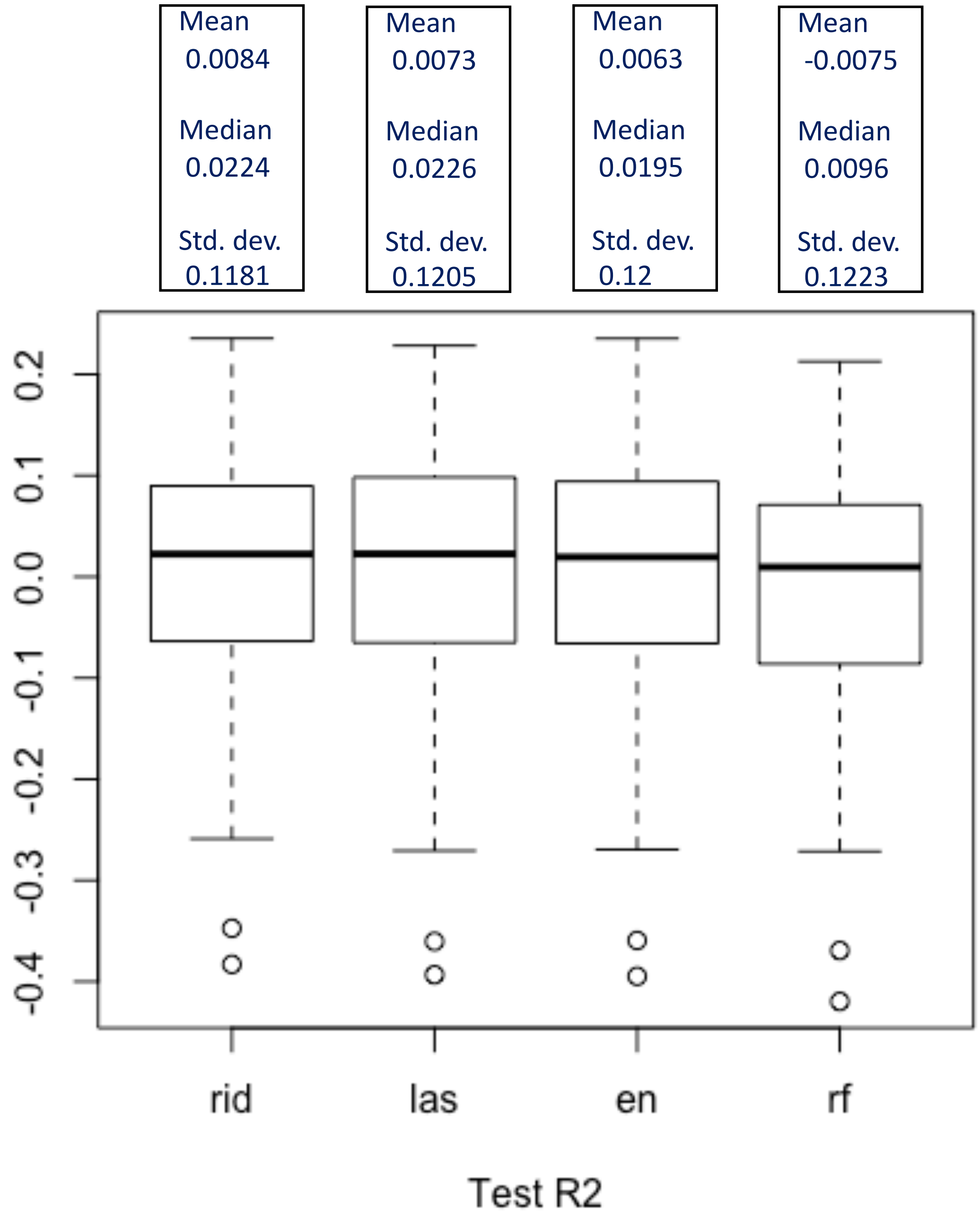


- One day's index futures intraday data
- Response variable: price difference between now and 15 seconds later
- Predictors: 49 features extracted from the contract's price/volume time history
- Downsampled from 1 row per second to 1 row per 14 seconds
- $n = 982$, $p = 49$

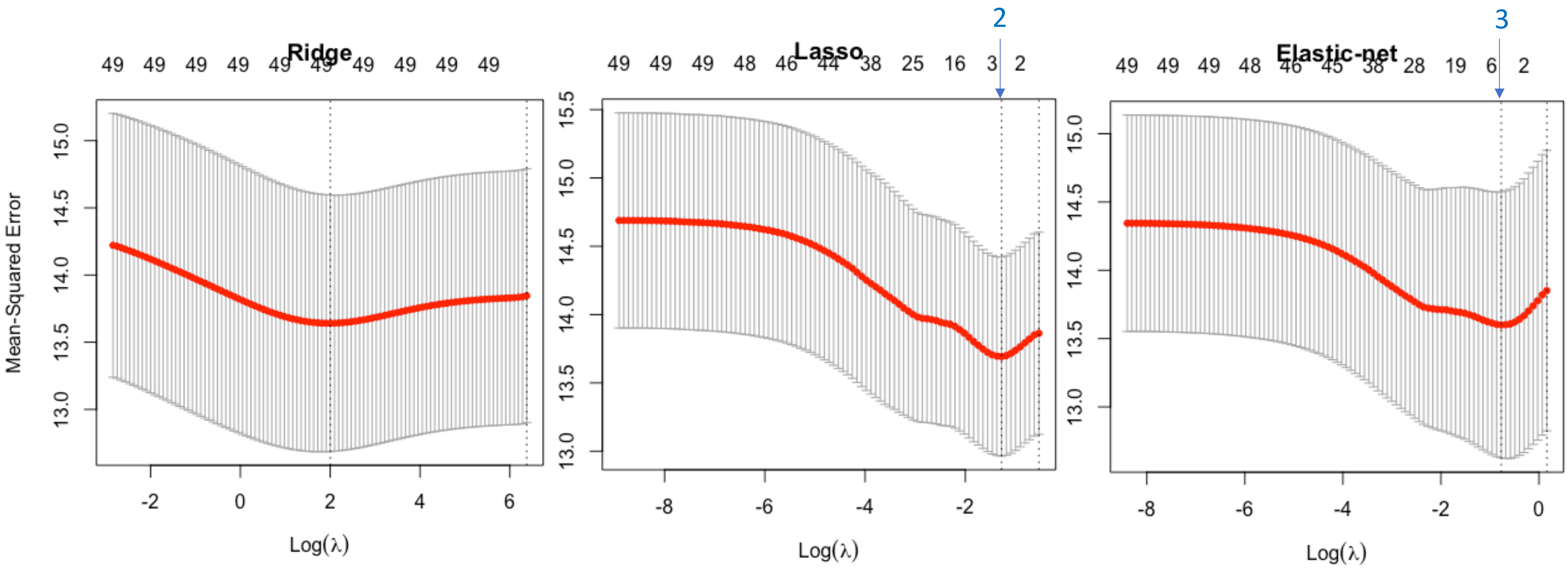
```
> describe(y)
   vars   n  mean  sd median trimmed mad    min   max range skew kurtosis   se
X1    1 982 -0.06 3.7  -0.16   -0.18 3.4 -12.79 17.23 30.02 0.46     1.38 0.12
```

Boxplots of R^2

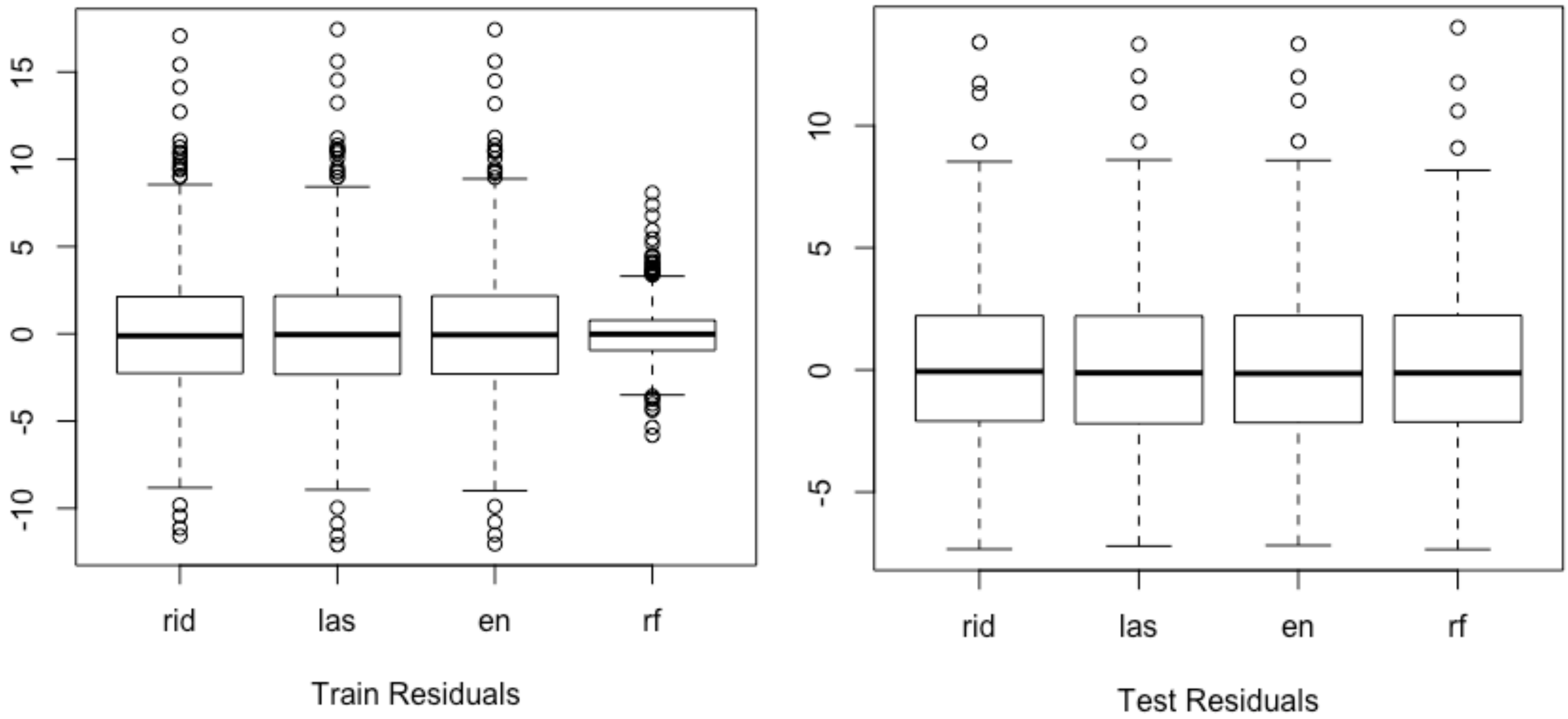




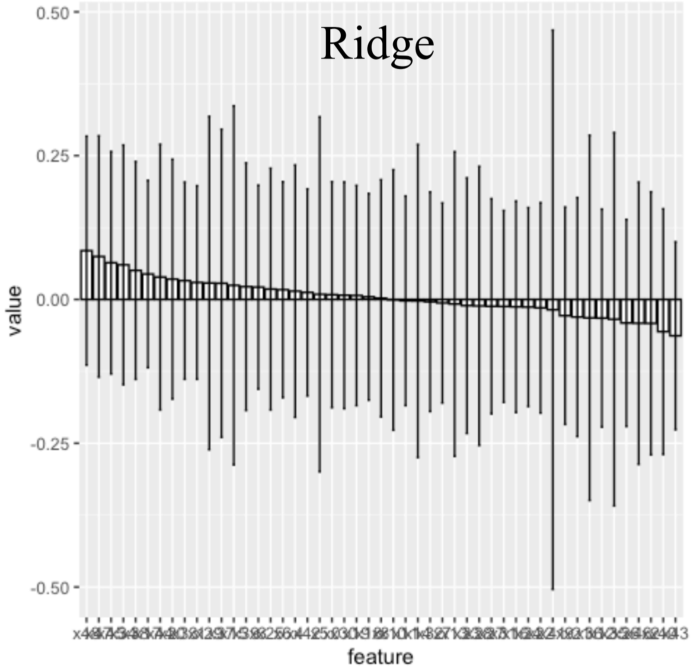
Cross-validation Curve

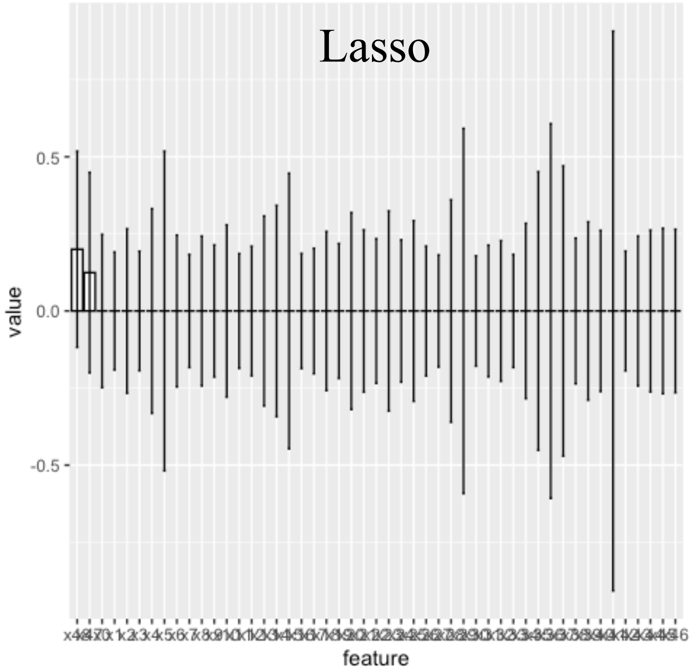


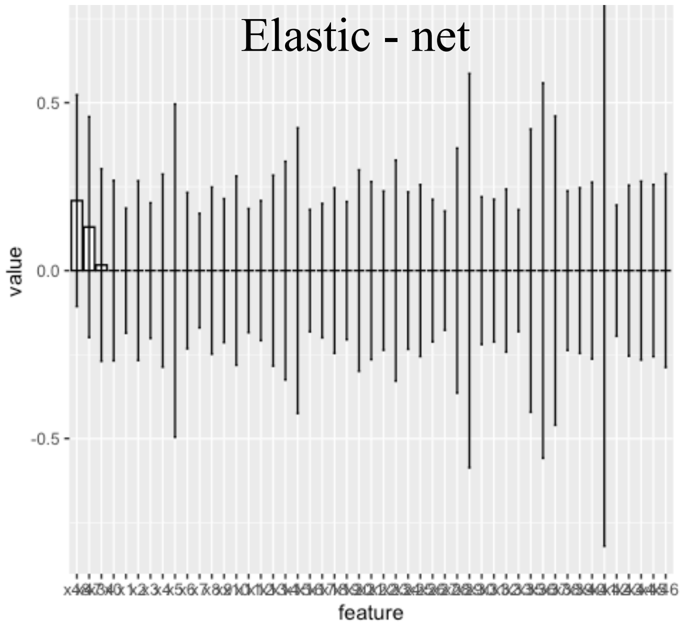
Boxplots of Residuals

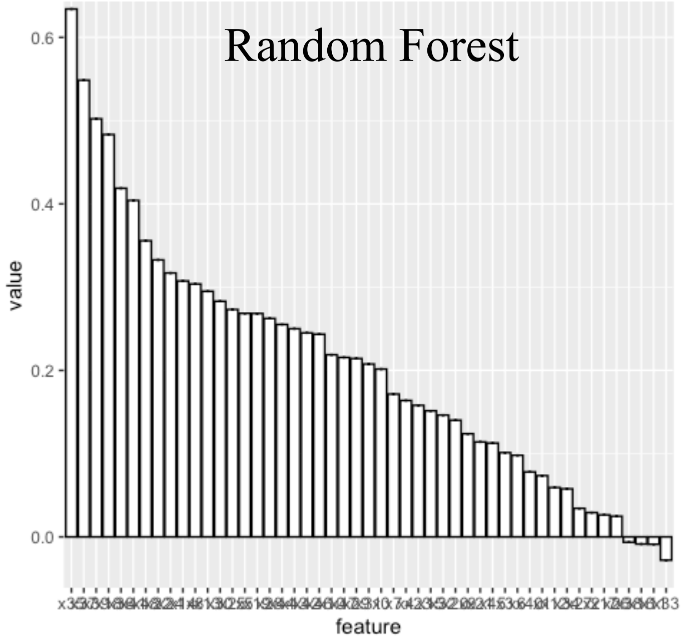


Bar-plots of Bootstrap









Summary

R square of fitting to the whole data (using bootstrap)			
Ridge	Lasso	Elastic-net	Random Forest
0.0303	0.017	0.018	0.8304

	Average Time (single model) in second			
	Ridge	Lasso	Elastic-net	Random Forest
CV	0.1832	0.1519	0.1433	4.1246
Bootstrap	0.1883	0.1516	0.1471	5.23