

Simulated examples for the survival ensemble methods

Select data type

W500

Time point for event prediction:

5

Random seed for calibration and validation

42

K_Outer loop CV (for validation)

3

K_inner CV folds (model tuning)

3

Simulated data: random seed (generation):

4242

Sample size:

150

Observation time

5

Expected event prevalence by study end

0.5

Expected drop out rate

0.3

Custom data: path to data file

~/Desktop/Study_KCL/PhD P

Predictors to use in the model

"baseline_age_", "genderdun

Time variable name

time

Event indicator variable name

event

Internally cross-validated results:

Show10▼entries

Search:

	AUCROC ▼	BS ▼	BS_scaled ▼	C_score ▼	Calib_slope ▼	Calib_alpha ▼	T ▼
test	0.8354	0.2138	0.2427	0.7763	1.0074	0.112	5
train	0.8499	0.1808	0.366	0.792	1.0814	0.1009	5

Showing 1 to 2 of 2 entries

Previous

1

Next

Internally cross-validated Test results for each CV fold:

Show10▼entries

Search:

	AUCROC ▼	BS ▼	BS_scaled ▼	C_score ▼	Calib_slope ▼	Calib_alpha ▼	T ▼
test.1	0.8683	0.2602	0.115	0.8119	1.2866	-0.0339	5
test.2	0.8016	0.1987	0.2868	0.7786	0.8396	0.1734	5
test.3	0.8363	0.1826	0.3264	0.7386	0.8961	0.1965	5

Showing 1 to 3 of 3 entries

Previous

1






Next

CoxPH coefficients:

Show10▼entries

Search:

	coef ▼	exp(coef) ▼	se(coef) ▼	z ▼	Pr(> z) ▼
age	0.0469	1.048	0.0069	6.8148	0
gender	-0.3035	0.7382	0.1453	-2.0891	0.0367
hr	0.0109	1.011	0.0032	3.469	0.0005
sysbp	0.0007	1.0007	0.0029	0.256	0.798
diasbp	-0.0122	0.9878	0.0049	-2.481	0.0131
bmi	-0.0502	0.9511	0.0168	-2.9849	0.0028
cvd	-0.0175	0.9827	0.1811	-0.0965	0.9231
afb	0.0571	1.0588	0.182	0.3138	0.7537
sho	1.2082	3.3474	0.2873	4.2056	0

	coef 	exp(coef) 	se(coef) 	z 	Pr(> z) 
chf	0.7203	2.055	0.1553	4.6366	0

Showing 1 to 10 of 16 entries

Previous

1

2

Next

Other results:

```
$test
```

	T	AUCROC	BS	BS_scaled	C_score	Calib_slope
1	5	0.8682535	0.2602209	0.1149573	0.8118509	1.2866152
2	5	0.8015597	0.1986948	0.2867882	0.7785848	0.8395848
3	5	0.8363341	0.1825857	0.3263970	0.7385718	0.8960731

	Calib_alpha	test	cv_n
1	-0.03387026	1	1
2	0.17339311	1	2
3	0.19649593	1	3

```
$train
```

	T	AUCROC	BS	BS_scaled	C_score	Calib_slope
1	5	0.8257977	0.1991569	0.3139214	0.7774400	1.032324
2	5	0.8783263	0.1648837	0.4166630	0.7914360	1.207564
3	5	0.8455916	0.1783162	0.3674650	0.8070029	1.004362

	Calib_alpha	test	cv_n
1	0.09838712	0	1
2	0.11091018	0	2
3	0.09352634	0	3

```
$testaverage
```

	T	AUCROC	BS	BS_scaled
5.0000000	0.8353824	0.2138338	0.2427142	

	C_score	Calib_slope	Calib_alpha	test
0.7763358	1.0074243	0.1120063	1.0000000	

```
$trainaverage
```

	T	AUCROC	BS	BS_scaled
5.0000000	0.8499052	0.1807856	0.3660164	

	C_score	Calib_slope	Calib_alpha	test
0.7919597	1.0814166	0.1009412	0.0000000	

```
$model_list
```

```
$model_list[[1]]
```

```
Call:
```

```
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
  paste(predict.factors, collapse = "+"))), data = df_train,
  x = TRUE)
```

	coef	exp(coef)	se(coef)	z	p
age	0.045127	1.046160	0.008373	5.389	7.07e-08
gender	-0.235510	0.790168	0.177216	-1.329	0.18387
hr	0.011451	1.011516	0.003917	2.923	0.00347
sysbp	0.003548	1.003555	0.003670	0.967	0.33358
diasbp	-0.013238	0.986849	0.006395	-2.070	0.03845
bmi	-0.047169	0.953926	0.019425	-2.428	0.01517
cvd	-0.025967	0.974367	0.219483	-0.118	0.90582
afb	0.046888	1.048005	0.224161	0.209	0.83431
sho	0.942797	2.567151	0.366438	2.573	0.01009
chf	0.518465	1.679448	0.189360	2.738	0.00618
av3	0.550735	1.734527	0.490364	1.123	0.26139
miord	0.031701	1.032208	0.189273	0.167	0.86699
mitype	-0.028336	0.972062	0.230706	-0.123	0.90225
los	-0.023947	0.976338	0.024218	-0.989	0.32277
y1997	-0.205430	0.814297	0.245965	-0.835	0.40360

```
y1999 -0.185491 0.830697 0.230437 -0.805 0.42085
```

Likelihood ratio test=135.4 on 16 df, p=< 2.2e-16

n= 333, number of events= 148

```
$model_list[[2]]
```

Call:

```
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
  paste(predict.factors, collapse = "+"))), data = df_train,
  x = TRUE)
```

	coef	exp(coef)	se(coef)	z	p
age	0.0427255	1.0436514	0.0082711	5.166	2.40e-07
gender	-0.4636530	0.6289817	0.1845558	-2.512	0.01200
hr	0.0105162	1.0105717	0.0040092	2.623	0.00871
sysbp	-0.0016290	0.9983723	0.0036701	-0.444	0.65715
diasbp	-0.0124902	0.9875874	0.0060900	-2.051	0.04027
bmi	-0.0628271	0.9391058	0.0221249	-2.840	0.00452
cvd	0.0550500	1.0565934	0.2185633	0.252	0.80114
afb	-0.0564619	0.9451025	0.2190806	-0.258	0.79662
sho	1.5720199	4.8163671	0.3514348	4.473	7.71e-06
chf	0.8723982	2.3926420	0.2024632	4.309	1.64e-05
av3	-0.0124767	0.9876008	0.6267103	-0.020	0.98412
miord	-0.0127836	0.9872978	0.1875898	-0.068	0.94567
mitype	-0.2589697	0.7718464	0.2389325	-1.084	0.27843
los	0.0008633	1.0008637	0.0176832	0.049	0.96106
y1997	-0.6730080	0.5101717	0.2518453	-2.672	0.00753
y1999	-0.3506881	0.7042033	0.2262112	-1.550	0.12108

Likelihood ratio test=172.6 on 16 df, p=< 2.2e-16

n= 334, number of events= 146

```
$model_list[[3]]
```

Call:

```
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
  paste(predict.factors, collapse = "+"))), data = df_train,
  x = TRUE)
```

	coef	exp(coef)	se(coef)	z	p
age	0.0537301	1.0551998	0.0095672	5.616	1.95e-08
gender	-0.2346093	0.7908797	0.1822319	-1.287	0.197947
hr	0.0112430	1.0113064	0.0038730	2.903	0.003697
sysbp	0.0012513	1.0012521	0.0036191	0.346	0.729524
diasbp	-0.0129867	0.9870973	0.0059917	-2.167	0.030202
bmi	-0.0371948	0.9634884	0.0207787	-1.790	0.073447
cvd	-0.1519318	0.8590468	0.2385936	-0.637	0.524268
afb	0.2506873	1.2849082	0.2343887	1.070	0.284828
sho	1.4600417	4.3061390	0.3960059	3.687	0.000227
chf	0.8340849	2.3027060	0.1887787	4.418	9.95e-06
av3	-0.0467745	0.9543026	0.5596070	-0.084	0.933387
miord	0.1944781	1.2146769	0.1852333	1.050	0.293760
mitype	-0.4134881	0.6613394	0.2645408	-1.563	0.118043
los	0.0009399	1.0009404	0.0200538	0.047	0.962617
y1997	-0.4720247	0.6237381	0.2512653	-1.879	0.060300
y1999	-0.4348502	0.6473617	0.2340114	-1.858	0.063134

```
Likelihood ratio test=166.9 on 16 df, p=< 2.2e-16  
n= 333, number of events= 136
```

```
$time  
Time difference of 6.258138 secs
```