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

Sample statistics | CoxPH | SRF | Ens1: CoxPH->SRF | Ens2: CoxPH in clusters | Ens3: extended CoxPH | Summary | Conclusions

Internally cross-validated results:

Show 10 entries Search:

	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test	0.8118	0.2244	0.2053	0.7758	1.561	0.1179	5
train	0.9303	0.1529	0.4636	0.8431	2.7438	0.0946	5

Showing 1 to 2 of 2 entries Previous 1 Next

Internally cross-validated Test results for each CV fold:

Show 10 entries Search:

	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test.1	0.8573	0.2768	0.0586	0.8024	1.6515	-0.0191	5
test.2	0.7968	0.1946	0.3014	0.7865	1.4133	0.156	5
test.3	0.7812	0.2017	0.256	0.7385	1.6183	0.2167	5

Showing 1 to 3 of 3 entries Previous 1 Next

```
$test
  T    AUCROC        BS  BS_scaled   C_score Calib_slope
1 5 0.8572986 0.2768052 0.05855204 0.8024435    1.651453
2 5 0.7968453 0.1946376 0.30135140 0.7864746    1.413345
3 5 0.7812443 0.2016586 0.25603246 0.7384580    1.618265
  Calib_alpha test cv_n
1 -0.01911689    1    1
2  0.15597670    1    2
3  0.21673321    1    3

$train
  T    AUCROC        BS BS_scaled   C_score Calib_slope
1 5 0.9205838 0.1550118 0.4659974 0.8344509    2.491747
2 5 0.9400630 0.1509249 0.4660473 0.8411095    2.917718
3 5 0.9303293 0.1526155 0.4586321 0.8537097    2.821934
  Calib_alpha test cv_n
1  0.08418908    0    1
2  0.09997626    0    2
3  0.09977442    0    3

$testaverage
          T      AUCROC          BS   BS_scaled
  5.0000000   0.8117961   0.2243671   0.2053120
    C_score Calib_slope Calib_alpha        test
  0.7757921   1.5610209   0.1178643   1.0000000

$trainaverage
          T      AUCROC          BS   BS_scaled
 5.00000000  0.93032537  0.15285076  0.46355895
    C_score Calib_slope Calib_alpha        test
 0.84309002  2.74379960  0.09464658  0.00000000

$model_list
$model_list[[1]]
$model_list[[1]]$beststats
   mtry nodesize nodedepth time    AUCROC        BS
V2    5       15        50  3.3 0.8072266 0.1832543
   BS_scaled   C_score Calib_alpha Calib_slope
V2 0.2606083 0.7552973  0.06757538    1.218337

$model_list[[1]]$allstats
    mtry nodesize nodedepth time    AUCROC        BS
V1     4       15        50  3.3 0.8043637 0.1852161
V2     4       20        50  3.3 0.8024537 0.1864733
V3     4       25        50  3.3 0.7999627 0.1882209
V4     4       30        50  3.3 0.7990136 0.1897830
V11    3       15        50  3.3 0.7904369 0.1909523
V21    5       15        50  3.3 0.8072266 0.1832543
V31    7       15        50  3.3 0.8028894 0.1846949
V41   10       15        50  3.3 0.8014589 0.1843634
V5    15       15        50  3.3 0.7960631 0.1863017
    BS_scaled   C_score Calib_alpha Calib_slope
V1  0.2526928 0.7516316  0.06788791   1.3262666
V2  0.2476201 0.7506482  0.07081597   1.4103051
V3  0.2405689 0.7487707  0.07485750   1.4865160
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V4  0.2342663 0.7476382  0.07708498   1.5852500
V11 0.2295486 0.7425123  0.07437630   1.4660559
V21 0.2606083 0.7552973  0.06757538   1.2183371
V31 0.2547956 0.7486813  0.06716325   1.0347783
V41 0.2561334 0.7490091  0.06428620   0.9451951
V5  0.2483127 0.7450752  0.06505799   0.8204357

$model_list[[1]]$model
                         Sample size: 333
                    Number of deaths: 148
                     Number of trees: 500
           Forest terminal node size: 15
       Average no. of terminal nodes: 17.486
No. of variables tried at each split: 5
              Total no. of variables: 16
       Resampling used to grow trees: swor
    Resample size used to grow trees: 210
                            Analysis: RSF
                              Family: surv
                     Splitting rule: logrank *random*
       Number of random split points: 50
                          (OOB) CRPS: 0.17140951
   (OOB) Requested performance error: 0.25213383



$model_list[[2]]
$model_list[[2]]$beststats
   mtry nodesize nodedepth time    AUCROC        BS
V1    3       15        50  2.9 0.8376261 0.1763126
   BS_scaled  C_score Calib_alpha Calib_slope
V1 0.3022627 0.767478  0.03303304    1.597998

$model_list[[2]]$allstats
    mtry nodesize nodedepth time    AUCROC        BS
V1     4       15        50  2.9 0.8271109 0.1791440
V2     4       20        50  2.9 0.8238877 0.1809529
V3     4       25        50  2.9 0.8260776 0.1817950
V4     4       30        50  2.9 0.8236170 0.1836310
V11    3       15        50  2.9 0.8376261 0.1763126
V21    5       15        50  2.9 0.8232165 0.1796748
V31    7       15        50  2.9 0.8121258 0.1842722
V41   10       15        50  2.9 0.8085880 0.1869265
V5    15       15        50  2.9 0.7987713 0.1912794
    BS_scaled   C_score Calib_alpha Calib_slope
V1  0.2910576 0.7626161  0.03242852   1.3665010
V2  0.2838992 0.7613566  0.03309362   1.4272236
V3  0.2805664 0.7627039  0.03293742   1.5170738
V4  0.2733009 0.7602730  0.03490725   1.5888450
V11 0.3022627 0.7674780  0.03303304   1.5979983
V21 0.2889569 0.7569048  0.02920876   1.1572810
V31 0.2707635 0.7552939  0.02649698   0.9807735
V41 0.2602593 0.7508420  0.02471518   0.8675883
V5  0.2430333 0.7450136  0.02680274   0.7782084

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

```
                         Sample size: 334
                    Number of deaths: 146
                     Number of trees: 500
          Forest terminal node size: 15
      Average no. of terminal nodes: 17.162
No. of variables tried at each split: 3
              Total no. of variables: 16
      Resampling used to grow trees: swor
   Resample size used to grow trees: 211
                           Analysis: RSF
                             Family: surv
                   Splitting rule: logrank *random*
      Number of random split points: 50
                        (OOB) CRPS: 0.16288161
  (OOB) Requested performance error: 0.23978114



$model_list[[3]]
$model_list[[3]]$beststats
   mtry nodesize nodedepth time    AUCROC        BS
V1    3       15        50  2.2 0.8389289 0.1584375
   BS_scaled   C_score Calib_alpha Calib_slope
V1 0.3090792 0.7729138  0.03131237    1.536734

$model_list[[3]]$allstats
    mtry nodesize nodedepth time    AUCROC        BS
V1     4       15        50  2.2 0.8382254 0.1567297
V2     4       20        50  2.2 0.8364531 0.1584062
V3     4       25        50  2.2 0.8359051 0.1598277
V4     4       30        50  2.2 0.8356853 0.1619339
V11    3       15        50  2.2 0.8389289 0.1584375
V21    5       15        50  2.2 0.8332823 0.1578670
V31    7       15        50  2.2 0.8303034 0.1584922
V41   10       15        50  2.2 0.8249527 0.1613719
V5    15       15        50  2.2 0.8139617 0.1660894
    BS_scaled   C_score Calib_alpha Calib_slope
V1  0.3165265 0.7781583  0.02674631   1.3814465
V2  0.3092154 0.7744254  0.03227084   1.4775225
V3  0.3030168 0.7743637  0.03260144   1.5745756
V4  0.2938317 0.7736233  0.03369496   1.6928002
V11 0.3090792 0.7729138  0.03131237   1.5367342
V21 0.3115669 0.7753201  0.02729319   1.1999087
V31 0.3088404 0.7728829  0.02612858   1.0730222
V41 0.2962824 0.7706617  0.02588402   0.9265618
V5  0.2757103 0.7636588  0.02749783   0.8310123

$model_list[[3]]$model
                         Sample size: 333
                    Number of deaths: 136
                     Number of trees: 500
          Forest terminal node size: 15
      Average no. of terminal nodes: 16.588
No. of variables tried at each split: 3
              Total no. of variables: 16
      Resampling used to grow trees: swor
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```
    Resample size used to grow trees: 210
                            Analysis: RSF
                              Family: surv
                      Splitting rule: logrank *random*
       Number of random split points: 50
                           (OOB) CRPS: 0.16090738
   (OOB) Requested performance error: 0.2233705




$time
Time difference of 7.471621 secs
```