Simulated examples for the survival ensemble methods

Select data type

ELSA_Diabetes_Study2   ▼

Time point for event prediction:

10

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:	**Observation time**
150	5

Expected event prevalence by study end	**Expected drop out rate**
0.5	0.3

	Custom data: path to data file
	~/Desktop/Study_KCL/PhD P

Predictors to use in the model	**Time variable name**
"baseline_age_", "genderdun	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 25 ▾ entries   Search: _____

	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test	0.7652	0.0784	0.0843	0.7375	1.3258	0.0456	10
train	0.9338	0.066	0.2294	0.8994	3.396	0.0426	10

Showing 1 to 2 of 2 entries   Previous 1 Next

Internally cross-validated Test results for each CV fold:

Show 25 ▾ entries   Search: _____

	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test.1	0.7502	0.0888	0.0738	0.7272	1.3538	0.0716	10
test.2	0.7502	0.0756	0.0776	0.7131	1.0813	0.0363	10
test.3	0.7952	0.071	0.1016	0.7721	1.5422	0.029	10

Showing 1 to 3 of 3 entries   Previous 1 Next

```
$test
   T    AUCROC          BS  BS_scaled   C_score
1 10 0.7501880 0.08877036 0.07379007 0.7272356
2 10 0.7501555 0.07557206 0.07756120 0.7130594
3 10 0.7952041 0.07100364 0.10164475 0.7720937
  Calib_slope Calib_alpha test cv_n
1    1.353774  0.07162146    1    1
2    1.081315  0.03630559    1    2
3    1.542244  0.02899761    1    3


$train
   T    AUCROC          BS BS_scaled   C_score
1 10 0.9412657 0.06291952 0.2217095 0.9054618
2 10 0.9370959 0.06585989 0.2485195 0.9044691
3 10 0.9229056 0.06916821 0.2180725 0.8884046
  Calib_slope Calib_alpha test cv_n
1    3.800460  0.03995091    0    1
2    3.250062  0.04313531    0    2
3    3.137387  0.04475523    0    3


$testaverage
          T      AUCROC         BS   BS_scaled
10.00000000  0.76518254  0.07844869  0.08433200
    C_score Calib_slope Calib_alpha        test
 0.73746290  1.32577759  0.04564155  1.00000000


$trainaverage
          T      AUCROC         BS   BS_scaled
10.00000000  0.93375574  0.06598254  0.22943382
    C_score Calib_slope Calib_alpha        test
 0.89944516  3.39596990  0.04261382  0.00000000


$model_list
$model_list[[1]]
$model_list[[1]]$beststats
   mtry nodesize nodedepth time    AUCROC          BS
V1    3       45        50  8.9 0.7589875 0.06459132
    BS_scaled   C_score Calib_alpha Calib_slope
V1 0.07272852 0.7333943  0.03365691    1.377095


$model_list[[1]]$allstats
    mtry nodesize nodedepth time    AUCROC          BS
V1     5       15        50  8.9 0.7430492 0.06418606
V2     5       20        50  8.9 0.7466669 0.06424983
V3     5       25        50  8.9 0.7453315 0.06451230
V4     5       30        50  8.9 0.7454297 0.06446076
V5     5       35        50  8.9 0.7497041 0.06436090
V6     5       40        50  8.9 0.7478760 0.06442024
V7     5       45        50  8.9 0.7510310 0.06444935
V8     5       50        50  8.9 0.7487942 0.06457587
V11    3       45        50  8.9 0.7589875 0.06459132
V21    5       45        50  8.9 0.7510310 0.06444935
V31    7       45        50  8.9 0.7424404 0.06444326
V41   10       45        50  8.9 0.7389454 0.06469537
V51   15       45        50  8.9 0.7317330 0.06502888
```

```
         BS_scaled   C_score  Calib_alpha  Calib_slope
V1   0.07854637  0.7168782   0.02970883    0.9279953
V2   0.07763097  0.7232029   0.03102456    0.9720246
V3   0.07386297  0.7215647   0.03173766    0.9954610
V4   0.07460276  0.7232419   0.03206848    1.0385216
V5   0.07603637  0.7258256   0.03263733    1.0749530
V6   0.07518456  0.7245143   0.03218674    1.0856971
V7   0.07476670  0.7267104   0.03280974    1.1197393
V8   0.07295038  0.7251623   0.03287696    1.1507664
V11  0.07272852  0.7333943   0.03365691    1.3770950
V21  0.07476670  0.7267104   0.03280974    1.1197393
V31  0.07485408  0.7196910   0.03279839    0.9981518
V41  0.07123475  0.7168229   0.03196650    0.8836084
V51  0.06644692  0.7102464   0.03162010    0.7886926


$model_list[[1]]$model
                          Sample size: 3978
                      Number of deaths: 305
                       Number of trees: 500
             Forest terminal node size: 45
         Average no. of terminal nodes: 58.65
No. of variables tried at each split: 3
                 Total no. of variables: 22
         Resampling used to grow trees: swor
     Resample size used to grow trees: 2514
                              Analysis: RSF
                                Family: surv
                        Splitting rule: logrank *random*
         Number of random split points: 50
                            (OOB) CRPS: 0.04269536
    (OOB) Requested performance error: 0.26783355




$model_list[[2]]
$model_list[[2]]$beststats
   mtry nodesize nodedepth time    AUCROC         BS
V2    5       45        50    9 0.7730687 0.07229733
     BS_scaled   C_score Calib_alpha Calib_slope
V2 0.08898468 0.7468917   0.0361002    1.250945


$model_list[[2]]$allstats
   mtry nodesize nodedepth time    AUCROC         BS
V1     5       15        50    9 0.7605830 0.07241540
V2     5       20        50    9 0.7681680 0.07208089
V3     5       25        50    9 0.7682778 0.07226056
V4     5       30        50    9 0.7654519 0.07246614
V5     5       35        50    9 0.7659836 0.07239691
V6     5       40        50    9 0.7684932 0.07240674
V7     5       45        50    9 0.7730687 0.07229733
V8     5       50        50    9 0.7726554 0.07231827
V11    3       45        50    9 0.7727730 0.07280658
V21    5       45        50    9 0.7730687 0.07229733
V31    7       45        50    9 0.7702401 0.07235117
V41   10       45        50    9 0.7616862 0.07277786
V51   15       45        50    9 0.7568244 0.07299605
```

```
       BS_scaled   C_score Calib_alpha Calib_slope
V1   0.08749684 0.7343191  0.03176983   0.9974719
V2   0.09171195 0.7401882  0.03303280   1.0692201
V3   0.08944799 0.7403087  0.03401434   1.0957085
V4   0.08685743 0.7409474  0.03447055   1.1223331
V5   0.08772988 0.7399385  0.03520917   1.1598871
V6   0.08760602 0.7422121  0.03548103   1.2010944
V7   0.08898468 0.7468917  0.03610020   1.2509450
V8   0.08872082 0.7457040  0.03618594   1.2697075
V11  0.08256761 0.7472875  0.03642145   1.5142709
V21  0.08898468 0.7468917  0.03610020   1.2509450
V31  0.08830615 0.7448313  0.03556496   1.1121004
V41  0.08292955 0.7363350  0.03508413   0.9718481
V51  0.08018010 0.7310404  0.03451212   0.8639389
```

$model_list[[2]]$model
```
                      Sample size: 3979
                  Number of deaths: 336
                  Number of trees: 500
          Forest terminal node size: 45
      Average no. of terminal nodes: 57.304
No. of variables tried at each split: 5
              Total no. of variables: 22
        Resampling used to grow trees: swor
    Resample size used to grow trees: 2515
                          Analysis: RSF
                            Family: surv
                  Splitting rule: logrank *random*
      Number of random split points: 50
                        (OOB) CRPS: 0.04549797
  (OOB) Requested performance error: 0.25520179
```

$model_list[[3]]
$model_list[[3]]$beststats
```
   mtry nodesize nodedepth time    AUCROC         BS
V2    5       50        50    9 0.7386983 0.07404802
      BS_scaled   C_score Calib_alpha Calib_slope
V2 0.06857753 0.7127417  0.03605974    1.159158
```

$model_list[[3]]$allstats
```
   mtry nodesize nodedepth time    AUCROC         BS
V1    5       15        50    9 0.7288558 0.07464766
V2    5       20        50    9 0.7295970 0.07453812
V3    5       25        50    9 0.7329829 0.07432046
V4    5       30        50    9 0.7329242 0.07430814
V5    5       35        50    9 0.7309042 0.07429240
V6    5       40        50    9 0.7347081 0.07417771
V7    5       45        50    9 0.7342579 0.07417547
V8    5       50        50    9 0.7386983 0.07404802
V11   3       50        50    9 0.7348157 0.07433716
V21   5       50        50    9 0.7386983 0.07404802
V31   7       50        50    9 0.7304359 0.07427231
V41  10       50        50    9 0.7257989 0.07460985
V51  15       50        50    9 0.7212593 0.07480556
```

```
      BS_scaled   C_score Calib_alpha Calib_slope
V1  0.06103497 0.7046342  0.03250830   0.8529167
V2  0.06241274 0.7047776  0.03283547   0.9191917
V3  0.06515069 0.7080682  0.03426658   0.9725972
V4  0.06530555 0.7079163  0.03463256   1.0252385
V5  0.06550365 0.7057922  0.03499574   1.0351752
V6  0.06694630 0.7100358  0.03583681   1.0957482
V7  0.06697439 0.7092072  0.03606249   1.1138429
V8  0.06857753 0.7127417  0.03605974   1.1591578
V11 0.06494056 0.7112393  0.03637166   1.3642897
V21 0.06857753 0.7127417  0.03605974   1.1591578
V31 0.06575631 0.7066958  0.03549752   0.9976823
V41 0.06151049 0.7021845  0.03464566   0.8831889
V51 0.05904871 0.6990287  0.03416482   0.7919310


$model_list[[3]]$model
                        Sample size: 3979
                   Number of deaths: 345
                    Number of trees: 500
          Forest terminal node size: 50
       Average no. of terminal nodes: 55.514
No. of variables tried at each split: 5
             Total no. of variables: 22
       Resampling used to grow trees: swor
   Resample size used to grow trees: 2515
                           Analysis: RSF
                             Family: surv
                     Splitting rule: logrank *random*
       Number of random split points: 50
                        (OOB) CRPS: 0.0477841
   (OOB) Requested performance error: 0.29130772




$time
Time difference of 1.515723 mins
```