Friday, May 04, 2018

In this document *readme.pdf*, we present the R-code that allows reproducing the analysis of the case study (available in the supplementary material) of the following article:

*Flexible and structured survival model for a simultaneous estimation of non-linear and non-proportional effects and complex interactions between continuous variables: performance of this multidimensional penalized spline approach in net survival trend analysis.*

Laurent Remontet, Zoé Uhry, Nadine Bossard, Jean Iwaz, Aurélien Belot, Coraline Danieli, Hadrien Charvat, Laurent Roche and the CENSUR Working Survival Group, Statistical Methods in Medical Research,2018.

However:

* due to copyright issues, we cannot provide the original real dataset. So, we provide one of the simulated datasets used in the simulation study on cervix uteri cancer data on 10,000 patients. The results may thus differ, to some extent, from those presented in the article.
* For simplicity the PH model is not presented

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| --- | --- |
| **File / directory** | **Contents** |
| /data/ | cervix dataset  expected hazard of the general population |
| /function/ | Function to split the data  modified link function |
| ana\_cervix.R  ***= main program*** | Load and split the data  Model fit  Prediction of excess hazard with CI  Prediction of net survival |
| Ana\_cervix.lis | Results from ana\_cervix.R |
| CI\_delta\_NS.R | prediction of net survival with CI |
| CI\_delta\_Standardized\_NS.R | prediction of standardized net survival with CI |
| FigureS11\_Trends\_Std\_NS.R | plot the figureS11 |
| FigureS12\_Trends\_NS\_by\_Age.R | plot the figureS12 |
| FigureS13\_ExcessHazard.R | plot the figureS13 |
| /res/ | figureS11, figureS12, figureS13 in eps format |

*CI=confidence intervals*

The following versions were used :

R version 3.1.1 (2014-07-10)

Platform: x86\_64-w64-mingw32/x64 (64-bit)

attached base packages:

[1] splines stats graphics grDevices utils datasets methods base

other attached packages:

[1] relsurv\_2.0-9 date\_1.2-34 survival\_2.37-7 statmod\_1.4.21 mgcv\_1.8-3 nlme\_3.1-117

loaded via a namespace (and not attached):

[1] grid\_3.1.1 lattice\_0.20-29 Matrix\_1.2-6 tools\_3.1.1