Package ‘censored’

January 31, 2024

Title 'parsnip' Engines for Survival Models

Version 0.3.0

Description Engines for survival models from the 'parsnip' package. These include parametric models (e.g., Jackson (2016) <doi:10.18637/jss.v070.i08>), semi-parametric (e.g., Simon et al (2011) <doi:10.18637/jss.v039.i05>), and tree-based models (e.g., Bühlmann and Hothorn (2007) <doi:10.1214/07-STS242>.

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BugReports https://github.com/tidymodels/censored/issues

Depends parsnip (>= 1.1.0), R (>= 3.5.0), survival (>= 3.3-1)

Imports cli, dials, dplyr (>= 0.8.0.1), generics, glue, hardhat (>= 1.1.0), lifecycle, mboost, prettyunits, prodlim (>= 2023.03.31), purrr, rlang (>= 1.0.0), stats, tibble (>= 3.1.3), tidyr (>= 1.0.0)

Suggests aorsf (>= 0.1.2), coin, covr, flexsurv (>= 2.2.1), glmnet (>= 4.1), ipred, partykit, pec, rmarkdown, rpart, testthat (>= 3.0.0)

Config/Needs/website tidymodels, tidyverse/tidytemplate

Config/testthat/edition 3

Encoding UTF-8

LazyData true

RoxygenNote 7.3.0

NeedsCompilation no

Author Emil Hvitfeldt [aut] <https://orcid.org/0000-0002-0679-1945>, Hannah Frick [aut, cre] <https://orcid.org/0000-0002-6049-5258>, Posit Software, PBC [cph, fnd]

Maintainer Hannah Frick <hannah@posit.co>

Repository CRAN

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## Description

censored provides engines for survival models from the parsnip package. The models include parametric survival models, proportional hazards models, decision trees, boosted trees, bagged trees, and random forests. See the "Fitting and Predicting with censored" article for various examples. See below for examples of classic survival models and how to fit them with censored.

## Author(s)

**Maintainer:** Hannah Frick <hannah@posit.co> (ORCID)

Authors:

- Emil Hvitfeldt <emil.hvitfeldt@posit.co> (ORCID)

Other contributors:

- Posit Software, PBC [copyright holder, funder]

## See Also

Useful links:

- [https://github.com/tidymodels/censored](https://github.com/tidymodels/censored)
- [https://censored.tidymodels.org](https://censored.tidymodels.org)
- Report bugs at [https://github.com/tidymodels/censored/issues](https://github.com/tidymodels/censored/issues)

## Examples

```r
# Accelerated Failure Time (AFT) model
fit_aft <- survival_reg(dist = "weibull") %>%
  set_engine("survival") %>%
  fit(Surv(time, status) ~ age + sex + ph.karno, data = lung)
predict(fit_aft, lung[1:3, ], type = "time")

# Cox's Proportional Hazards model
fit_cox <- proportional_hazards() %>%
  set_engine("survival") %>%
```
time_to_million

```r
fit(Surv(time, status) ~ age + sex + ph.karno, data = lung)
predict(fit_cox, lung[1:3, ], type = "time")

# Andersen-Gill model for recurring events
fit_ag <- proportional_hazards() %>%
  set_engine("survival") %>%
  fit(Surv(tstart, tstop, status) ~ treat + inherit + age + strata(hos.cat),
      data = cgd)
predict(fit_ag, cgd[1:3, ], type = "time")
```

time_to_million

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of days before a movie grosses $1M USD</td>
</tr>
</tbody>
</table>

**Description**

These data are a somewhat biased random sample of 551 movies released between 2015 and 2018. Columns include

**Details**

- **title**: a character string for the movie title.
- **time**: number of days until the movie earns a million US dollars.
- **event**: a binary value for whether the movie reached this goal. About 94% of the movies had observed events.
- **released**: a date field for the release date.
- **distributor**: a factor with the name of the distributor.
- **released_theaters**: the maximum number of theaters where the movie played in the first two weeks of release.
- **year**: the release year.
- **rated**: a factor for the Motion Picture Association film rating.
- **runtime**: the length of the movie (in minutes).
- A set of indicators columns for the movie genre (e.g. action, crime, etc.).
- A set of indicators for the language (e.g., english, hindi, etc.).
- A set of indicators for countries where the movie was released (e.g., uk, japan, etc.)

**Value**

- `time_to_million` a tibble
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