Package: RcppUTS (via r-universe)

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Type Package

Title Rcpp Bindings for Algorithms for Unevenly Spaced Time Series

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Description Algorithms and operators for unevenly-spaced time series are provided based on the 'UTS' library by Andreas Eckner.

License GPL (>= 2)

Imports Rcpp (>= 0.12.17)

LinkingTo Rcpp

Suggests xts

RoxygenNote 6.0.1

Repository https://eddelbuettel.r-universe.dev

RemoteUrl https://github.com/eddelbuettel/rcpputs

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Contents

RcppUTS-package — *Rcpp Bindings for Algorithms for Unevenly Spaced Time Series*

Description

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Details

The DESCRIPTION file: This package was not yet installed at build time.

Index: This package was not yet installed at build time.

This section should provide a more detailed overview of how to use the package, including the most important functions.

Author(s)

Dirk Eddelbuettel

Maintainer: Dirk Eddelbuettel <edd@debian.org>

References

This optional section can contain literature or other references for background information.

See Also

Optional links to other man pages

Examples

```
## Optional simple examples of the most important functions
## Use \dontrun{} around code to be shown but not executed
```

EMAnext — *EMA functions for unevenly spaced time series*

Description

The UTS library by Andreas Eckner provides algorithms for unevenly spaced time-series data. This package brings a few of them to R. The functions describe here offer exponentially-decaying weighted moving average, or EMA, for short. Three variants are provides considering the last or next observation relative to time 't', as well as linear interpolation between them.

Usage

```
EMAnext(times, values, tau)

EMAlast(times, values, tau)

EMAlinear(times, values, tau)
```

Arguments

times	A Datetime vector
values	A numeric vector
tau	A double with the decay factor

Value

A numeric vector with EMA-weighted values. package at the given position is available.

Author(s)

Dirk Eddelbuettel for the package, Andreas Eckner for the underlying code.

Examples

```
if (requireNamespace("xts", quietly=TRUE)) {
    suppressMessages(library(xts))
    times <- ISOdatetime(2010, 1, 2, 8, 30, 0) + c(0, 1.0, 1.2, 2.3, 2.9, 5.0)
    values <- seq(0, 10, by=2)
    plot(xts(values, order.by=times), type="b",
         main="Series and last/next/linear EMAs",
         major.ticks="auto", grid.ticks.on="auto")
    lines(xts(EMAlast(times,values, 1),  values, order.by=times),
          type="b", col="lightblue")
    lines(xts(EMAnext(times,values, 1),  values, order.by=times),
          type="b", col="darkblue")
    lines(xts(EMAlinear(times,values, 1),  values, order.by=times),
          type="b", col="mediumblue")
    addLegend("topleft", legend.names=c("series", "EMAlast", "EMAnext", "EMAlinear"),
              lty=rep(1,4), lwd=rep(1,4),
              col=c("black", "lightblue", "darkblue", "mediumblue"))
}
```

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rollingCentralMoment *Rolling operations functions for irregularly spaced time series*

Description

The UTS library by Andreas Eckner provides algorithms for unevenly spaced time-series data. This package brings a few of them to R. The functions describe here offer various rolling operators.

Usage

```
rollingCentralMoment(times, values, widthbefore, widthafter, moment)

rollingMax(times, values, widthbefore, widthafter)

rollingMean(times, values, widthbefore, widthafter)

rollingMedian(times, values, widthbefore, widthafter)

rollingMin(times, values, widthbefore, widthafter)

rollingNobs(times, values, widthbefore, widthafter)

rollingProduct(times, values, widthbefore, widthafter)

rollingSD(times, values, widthbefore, widthafter)

rollingSum(times, values, widthbefore, widthafter)

rollingSumStable(times, values, widthbefore, widthafter)

rollingVar(times, values, widthbefore, widthafter)
```

Arguments

`times`	A Datetime vector
`values`	A numeric vector
`widthbefore`	A double with the preceding observation width
`widthafter`	A double with the subsequent observation width
`moment`	A double with the requested moment.

Value

A numeric vector with the corresponding result.

Author(s)

Dirk Eddelbuettel for the package, Andreas Eckner for the underlying code.

`SMAnext` *SMA functions for unevenly spaced time series*

Description

The UTS library by Andreas Eckner provides algorithms for unevenly spaced time-series data. This package brings a few of them to R. The functions describe here offer simple moving average, or SMA, for short. Three variants are provides considering the last or next observation relative to time 't', as well as linear interpolation between them.

Usage

```
SMAnext(times, values, widthbefore, widthafter)

SMAlast(times, values, widthbefore, widthafter)

SMAlinear(times, values, widthbefore, widthafter)
```

Arguments

`times`	A Datetime vector
`values`	A numeric vector
`widthbefore`	A double with the preceding observation width
`widthafter`	gvA double with the subsequent observation width

Value

A numeric vector with SMA-weighted values. package at the given position is available.

Author(s)

Dirk Eddelbuettel for the package, Andreas Eckner for the underlying code.

Examples

```
if (requireNamespace("xts", quietly=TRUE)) {
    suppressMessages(library(xts))
    times <- ISOdatetime(2018, 6, 7, 8, 30, 0) + c(0, 1.0, 1.2, 2.3, 2.9, 5.0)
    values <- seq(0, 10, by=2)
    plot(xts(values, order.by=times), type="b",
         main="Series and last/next/linear SMAs",
         major.ticks="auto", grid.ticks.on="auto")
    lines(xts(SMAlast(times,values, 2.5, 1), values, order.by=times),
         type="b", col="lightblue")
    lines(xts(SMAnext(times,values, 2.5, 1),  values, order.by=times),
         type="b", col="darkblue")
    lines(xts(SMAlinear(times,values, 2.5, 1),  values, order.by=times),
         type="b", col="mediumblue")
    addLegend("topleft", legend.names=c("series", "SMAlast", "SMAnext", "SMAlinear"),
              lty=rep(1,4), lwd=rep(1,4),
              col=c("black", "lightblue", "darkblue", "mediumblue"))
}
```

`utsExample` *Irregularly spaced time series example*

Description

The UTS library by Andreas Eckner provides algorithms for unevenly spaced time-series data. This package brings a few of them to R. This function shows the original example.

Usage

```
utsExample()
```

Value

Nothing

Author(s)

Dirk Eddelbuettel for the package, Andreas Eckner for the underlying code.

Examples

```
utsExample()
```

Index