Package 'watson.kernel'

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Type Package

Title A package to calculate the kernel density estimates using the Watson kernel

Version 1.0

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Description A package to calculate the kernel density estimates for data over S^(p-1) using the Watson kernel density estimator

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Encoding UTF-8

LazyData true

Depends R (>= 3.5.1)

Imports hypergeo, fAsianOptions, BAS

RoxygenNote 6.1.1

NeedsCompilation no

R topics documented:

`mwatson.tune` *A function to calulate the bandwidth for the Watson kernel density estimator*

Description

A function to calulate the optimal bandwidth (tuning parameter) for the Watson kernel density estimator. Uses cross validation to calculate the bandwidth. ALso works for the multivariate Watson kernel density estimmator.

Usage

```
mwatson.tune(x)
```

Arguments

x	A matrix or dataframe of values on S^(p-1). Should not contain NA's or NaN's
low	The lower value of the bandwdith to search.
high	The upper value of the bandwdith to search.

Value

Optimal h	The optimal bandwidth obtained through cross-validation
cv	The value of the maximised pseudo-likelihood

Author(s)

Nishan Mudalige

References

Michail Tsagris, Giorgos Athineou, Anamul Sajib, Eli Amson, Micah J. Waldstein (2018); Package "Directional", version 3.4

Examples

```
## install_github("baddstats/spherstat")
## library(spherstat)
##
## x = rWatson(n=100, mode=c(0,0), kappa=50, win=sphwin())
## x = x[[1]]
##
## mwatson.tune(x)
```

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w.kde *A function to obtain kernel density values using the Watson kernel density estimator*

Description

A function which provides obtain kernel density estimates using the Watson kernel density estimator for a given matrix.

Usage

```
w.kde(x)
```

Arguments

x	A matrix or dataframe of values on S^(p-1). Should not contain NA's or NaN's
h	The bandwidth. If left as NULL, the optimal bandwidth will be calculated using the Watson kernel density estimator.

Value

h	The bandwidth.
f	A vector of kernel density estimates.

Author(s)

Nishan Mudalige

References

Michail Tsagris, Giorgos Athineou, Anamul Sajib, Eli Amson, Micah J. Waldstein (2018); Package "Directional", version 3.4

Examples

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## install_github("baddstats/spherstat")
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