Package 'ModEstM'

May 7, 2026

Type Package

Title Mode Estimation, Even in the Multimodal Case

Version 0.0.1

Description Function ModEstM() is the only one of this package, it estimates the modes of an empirical univariate distribution. It relies on the stats::density() function, even for input control. Due to very good performance of the density estimation, computation time is not an issue. The multiple modes are handled using dplyr::group_by(). For conditions and rates of convergences, see Eddy (1980) <doi:10.1214/aos/1176345080>.

Depends R (>= 4.1)

License GPL-3

Encoding UTF-8

RoxygenNote 7.1.2

Imports dplyr, rlang, stats

NeedsCompilation no

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Contents

ModEstM *Computes the modes, i.e. the local maxima fo the density function for a given empirical distribution*

Description

Computes the modes, i.e. the local maxima fo the density function for a given empirical distribution

Usage

```
ModEstM(x, ...)
```

Arguments

x	: the random values
...	: other parameters, passed to density. The main use of this feature is to increase "adjust" in order to suppress spurious local density maxima.

Value

a list of the modes, in decreasing order of the corresponding density. It allows to suppress the less significant modes, if necessary.

Examples

```
require(dplyr)

x1 <- c(rbeta(1000, 23, 4))
x2 <- c(rbeta(1000, 23, 4), rbeta(1000, 4, 16))

Distribs <-
  rbind(data.frame(case = 1, XX = x1), data.frame(case = 2, XX = x2))

Adjust <- 1

Modes <- Distribs |>
  group_by(case) |>
  summarise(mode = ModEstM(XX, adjust = Adjust))
Modes$case
Modes$mode

ChosenCase <- 2

values <- Distribs |>
  filter(case == ChosenCase) |>
  pull(XX)
plot(density(values, adjust = Adjust))
abline(v = Modes |> filter(case == ChosenCase) |> pull(mode) |> unlist())
```

Index