

# Package ‘ModEstM’

May 19, 2022

**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

**Author** Jerome Collet [aut, cre]

**Maintainer** Jerome Collet <jeromepcollet@gmail.com>

**Repository** CRAN

**Date/Publication** 2022-05-19 08:10:02 UTC

## R topics documented:

ModEstM . . . . .	2
<b>Index</b>	<b>3</b>

---

ModEstM	<i>Computes the modes, i.e. the local maxima fo the density function for a given empirical distribution</i>
---------	---

---

### 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

ModEstM, [2](#)