Package 'lightAUC'

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Type Package

Title Fast AUC Computation

Version 0.1.3

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Description Fast calculation of Area Under Curve (AUC) metric of a Receiver Operating Characteristic (ROC) curve, using the algorithm of Fawcett (2006) <doi:10.1016/j.patrec.2005.10.010>. Therefore it is appropriate for large-scale AUC metric calculations.

License GPL-3

Imports Rcpp (>= 1.0.13), RcppParallel (>= 5.1.9)

LinkingTo Rcpp, RcppArmadillo, RcppParallel

Encoding UTF-8

SystemRequirements GNU make

Suggests Rfast, Rfast2, knitr, rmarkdown, testthat (>= 3.0.0)

VignetteBuilder knitr, rmarkdown

Config/testthat/edition 3

URL https://github.com/cadam00/lightAUC, https://cadam00.github.io/lightAUC/

BugReports https://github.com/cadam00/lightAUC/issues

NeedsCompilation yes

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Repository CRAN

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`lightAUC` *Fast AUC computation*

Description

Fast and memory efficient AUC computation.

Usage

```
lightAUC(probs, actuals, parallel = FALSE, cores = 2)
```

Arguments

`probs`	`numeric` vector containing probability from the model, where closer to 1 is for the positive class and closer to 0 is for the negative class.
`actuals`	`integer`, `numeric` or `logical` vector with the actual data, where is 1 for the positive class and 0 for the negative class.
`parallel`	`logical` indicating if multithreading should be used. The default is no multithreading (`parallel = FALSE`).
`cores`	`integer` indicating the number of threads to be used when `parallel = TRUE`. The default is `cores=2`, meaning that 2 cores are used.

Details

Binary AUC computation according to Fawcett (2006) doi:10.1016/j.patrec.2005.10.010.

Value

`numeric` value representing the AUC metric.

References

Fawcett, T. (2006). An introduction to ROC analysis. *Pattern Recognition Letters*, **27**(8), 861–874. doi:10.1016/j.patrec.2005.10.010

Examples

```
probs   <- c(1, 0.4, 0.8)
actuals <- c(0, 0, 1)
lightAUC(probs, actuals)

probs   <- c(1, 0.4, 0.8)
actuals <- c(FALSE, FALSE, TRUE)
lightAUC(probs, actuals)

probs   <- c(1, 0.4, 0.8)
actuals <- c(0, 0, 1)
lightAUC(probs, actuals, parallel = TRUE, cores = 2L)
```

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