

Package ‘lightAUC’

February 11, 2025

Type Package

Title Fast AUC Computation

Version 0.1.2

Maintainer Christos Adam <econp266@econ.soc.uoc.gr>

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](https://doi.org/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

Author Christos Adam [aut, cre] (<<https://orcid.org/0009-0003-3244-7034>>)

Repository CRAN

Date/Publication 2025-02-11 10:00:02 UTC

Contents

lightAUC	2
Index	3

`lightAUC`*Fast AUC computation*

Description

Fast and memory efficient AUC computation.

Usage

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

Arguments

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

Details

Binary AUC computation according to Fawcett (2006) [doi:10.1016/j.patrec.2005.10.010](https://doi.org/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](https://doi.org/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)
```

Index

lightAUC, [2](#)