

# Package ‘opart’

September 4, 2019

**Type** Package

**Title** Optimal Partitioning

**Version** 2019.1.0

**Author** Anuraag Srivastava

**Maintainer** Anuraag Srivastava <srivastava.anurag.90@gmail.com>

**Description** A reference implementation of standard optimal partitioning algorithm in C using square-error loss and Poisson loss functions as described by Robert Maidstone (2016) <doi:10.1007/s11222-016-9636-3>, Toby Hocking (2016) <doi:10.1007/s11222-016-9636-3>, Guillem Rigaiil (2016) <doi:10.1007/s11222-016-9636-3>, Paul Fearnhead (2016) <doi:10.1007/s11222-016-9636-3>. It scales quadratically with number of data points in terms of time-complexity.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 6.1.1

**Depends** R (>= 3.5.0)

**URL** <https://github.com/as4378/opart>

**BugReports** <https://github.com/as4378/opart/issues>

**Suggests** knitr, rmarkdown, testthat, dplyr, ggplot2, directlabels, data.table, covr, neuroblastoma, microbenchmark, changepoint, Segmentor3IsBack, fpop

**VignetteBuilder** knitr

**NeedsCompilation** yes

**Repository** CRAN

**Date/Publication** 2019-09-04 13:40:02 UTC

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opart_gaussian	<i>compute the optimal changepoint model for a vector of real-valued data and a non-negative real-valued penalty, given the square loss (to minimize) / gaussian likelihood (to maximize)</i>
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**Description**

compute the optimal changepoint model for a vector of real-valued data and a non-negative real-valued penalty, given the square loss (to minimize) / gaussian likelihood (to maximize)

**Usage**

```
opart_gaussian(data, penalty)
```

**Arguments**

data	A numerical vector for which the changepoint model is to be computed
penalty	A non-negative real number indicating penalty parameter

**Value**

A vector of the optimal cost values and a vector of the optimal segment ends

**Examples**

```
data(neuroblastoma, package="neuroblastoma")
selectedData <- subset(neuroblastoma$profiles, profile.id=="1" & chromosome=="1")
opart::opart_gaussian(data=selectedData$logratio, penalty=1)
```

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opart_poisson	<i>compute the optimal changepoint model for a vector of real-valued data and a non-negative real-valued penalty, given the poisson loss (to minimize) / log likelihood (to maximize)</i>
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**Description**

compute the optimal changepoint model for a vector of real-valued data and a non-negative real-valued penalty, given the poisson loss (to minimize) / log likelihood (to maximize)

**Usage**

```
opart_poisson(data, penalty)
```

**Arguments**

`data`            A list of numbers for which the changepoint model is to be computed  
`penalty`        A non-negative real number indicating penalty parameter

**Value**

An error status code with a pointer to the optimal cost values and a pointer to the optimal segment ends

**Examples**

```
sample_data <- rpois(100, 10.5)  
opart::opart_poisson(data=sample_data, penalty=1)
```

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