Package 'sgolay'

Type Package

Title Efficient Savitzky-Golay Filtering

Version 1.0.3

Date 2023-03-30

URL https://github.com/zeehio/sgolay

BugReports https://github.com/zeehio/sgolay/issues

Description Smoothing signals and computing their derivatives is a common
requirement in signal processing workflows. Savitzky-Golay filters are a
established method able to do both (Savitzky and Golay, 1964 <doi:10.1021/ac60214a047>).
This package implements one dimensional Savitzky-Golay filters that can be applied to
vectors and matrices (either row-wise or column-wise).
Vectorization and memory allocations have been profiled to reduce computational
fingerprint. Short filter lengths are implemented in the direct space, while
longer filters are implemented in frequency space, using a Fast Fourier
Transform (FFT).

Imports signal

License GPL (>= 2)

Encoding UTF-8

RoxygenNote 7.2.3

Suggests covr, RUnit

NeedsCompilation yes

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R topics documented:

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sgolayfilt	*Apply a Savitzky-Golay smoothing filter*

Description

Smooth data or compute its derivatives with a Savitzky-Golay smoothing filter.

Usage

```
sgolayfilt(
  x,
  p = 3,
  n = p + 3 - p%%2,
  m = 0,
  ts = 1,
  rowwise = FALSE,
  engine = c("auto", "fft", "filter")
)
```

Arguments

x	A numeric matrix or vector
p	filter order.
n	filter length (must be odd).
m	return the m-th derivative of the filter coefficients.
ts	time scaling factor.
rowwise	If TRUE, Apply the filter by rows instead of by columns
engine	How is the filter applied. This parameter impacts the performance, but not the results. "auto" will select automatically an efficient engine. "fft" uses a Fast Fourier Transform to apply the filter. "filter" uses a convolution in the direct space. "fft" is more efficient on larger filter lengths.

Value

A matrix or vector of the same dimensions or length as x, with the result of the filter

Examples

```
x <- runif(300)
y <- sgolayfilt(x, p=2, n = 21)
```

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