

Package ‘ADM3’

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Type Package

Title An Interpretation of the ADM method - automated detection algorithm.

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Depends

Description Robust change point detection using ADM3 algorithm.

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NeedsCompilation yes

R topics documented:

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ADM3

Automated Detection Algorithm Interpretation.

Description

Performs change point detection on a "bed" formatted file.

Usage

```
ADM3(file, outfile, t=6, np=3, mr=0.3, autoCut=F)
```

Arguments

| | |
|---------|--|
| file | - "bed" formatted input file (chr, start, stop, value, score). |
| outfile | - output file location (a report of detected features). |
| t | - the main detection threshold - controls sensitivity - not recommended below 4. |
| np | - number of data points required to detect a feature. |
| mr | - minimum mean ratio to detect a segment. |
| autoCut | - attempt noise dependant auto filtering. |

Details

Performs change point detection on a bed formatted file and allows an error value to be applied to each probe.

This is a highly efficient implementation - takes less than 2 mins to process 1 million data points (most of which is spent reading the input file!).

Value

A list containing input data (with detection score and feature indices) and a report (detected features).

Note

This algorithm is now very robust - it is noise aware - and has several further modifications, improving its performance.

Author(s)

Tomas William Fitzgerald

References

Agilent

See Also

<http://www.home.agilent.com/agilent/home.jspx>

Examples

```
#exampleADM3()
```

dLRs

Calculate the DLR Spread.

Description

Calculates the "DLR spread" - derivative log₂ ratio spread.

Usage

```
dLRs(x)
```

Arguments

x - vector of log ratio values.

Details

Calculates the probe-to-probe log ratio difference of an array. This is a noise estimation which is robust to outliers.

Value

The derivative log₂ ratio spread.

Note

A value used to compute the minimum log ratio difference needed to detect an outlier.

Author(s)

Tomas William Fitzgerald

References

Agilent

See Also

<http://www.home.agilent.com/agilent/home.jspx>

Examples

```
r1 = rnorm(100, 0, 3)
dLRs(r1)
r2 = rnorm(100, 0, 5)
dLRs(r2)
```

exampleADM3

An example of using ADM3.

Description

Performs change point detection on an input file and plots resulting features.

Usage

```
exampleADM3(outfile)
```

Arguments

outfile - location of a report file to be written.

Details

example.

Value

A report written in file (outfile).

Note

note.

Author(s)

Tomas William Fitzgerald

Examples

```
#exampleADM3()
```

| | |
|--------|------------------------|
| getCut | <i>Find a cut-off.</i> |
|--------|------------------------|

Description

Find a absolute cut-of on mean ratio.

Usage

```
getCut(dlrss, fa, mi)
```

Arguments

| | |
|-------|--|
| dlrss | - the dLRs of a segment. |
| fa | - a factor for scaling. |
| mi | - the mimimum expected dLRs of the sample. |

Details

Can define cut-offs based on local data noise.

Value

A cut-of value.

Note

note.

Author(s)

Tomas William Fitzgerald

Examples

```
getCut(0.12, 0.3, 0.08)
```

mapBreak

mapBreak.

Description

Trys to fine mapping break point locations.

Usage

```
mapBreak(d, ind1, ind2, mr)
```

Arguments

| | |
|------|----------------------------------|
| d | - input data. |
| ind1 | - break point start position. |
| ind2 | - break point stop position. |
| mr | - minimum mean ratio acceptable. |

Details

example

Value

Indices of fine mapped break points.

Note

No merging of adjacent feature is done - this is expect to be done during post-processing.

Author(s)

Tomas William Fitzgerald

Examples

```
#exampleADM3()
```

plotADM3

A plotting function.

Description

Makes a plot for each detection feature.

Usage

```
plotADM3(1)
```

Arguments

1 - list - output from ADM2.

Details

Cycles though each detected feature - plotting its surroundings.

Value

A number of plots.

Note

note.

Author(s)

Tomas William Fitzgerald

Examples

```
#plotADM3(1)
```

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