Package 'TrackMateR'

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Type Package

Title Working with TrackMate outputs in R

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Author Stephen Royle

Maintainer quantixed <admin@quantixed.org>

Description TrackMate, a plugin for ImageJ/Fiji, is a popular single-particle tracking solution. Building on the trackR package by Julien Godet, the aim is to import TrackMate data into R for further analysis and visualization.

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Encoding UTF-8

LazyData true

RoxygenNote 7.2.0

Imports XML, doParallel, foreach, ggplot2, dplyr

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`calculateMSD` *Calculate Mean Squared Displacement (MSD)*

Description

Input is a data frame of tracks imported using readTrackMateXML()

Usage

```
calculateMSD(df, N = 4, short = 0)
```

Arguments

df	data frame must include at a minimum - trace (track ID), x, y and t (in real coords)
N	numeric variable for MSD. dt should be up to 1/N of number of data points (4 recommended)
short	numeric variable for the shortest number of points we will analyse. Note, this uses the number of frames from start, not number of points in track, i.e. a track with <short points and many gaps will remain

Value

data frame

Examples

```
xmlPath <- "~/Desktop/FakeTracks.xml"
data <- readTrackMateXML(XMLpath = xmlPath)
data <- correctTrackMateData(data, xy = 0.04)
msdDF <- calculateMSD(data, N = 3, short = 8)
```

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correctTrackMateData *Correct distance and time of imported TrackMate data.*

Description

If the TrackMate data is in pixels and/or frames, the data frame can be converted with this function.

Usage

```
correctTrackMateData(df, xysize = 1, tsize = 1)
```

Arguments

df	data frame of imported track mate data
xysize	pixel size of original movie. Assumes isotropic scaling, i.e. pixel height = pixel width
tsize	time. Frame interval of tracked data.

Value

data frame

Examples

```
xmlPath <- "~/Desktop/FakeTracks.xml"
data <- readTrackMateXML(XMLpath = xmlPath)
data <- correctTrackMateData(data, xy = 0.03)
```

plotMSD — *Make a plot of MSD data*

Description

Input is the output from CalculateMSD()

Usage

```
plotMSD(df, units = "s", xlog = FALSE, ylog = FALSE)
```

Arguments

df	MSD summary = output from calculateMSD()
units	string to describe time units (default is s, seconds)
xlog	boolean to request log10 x axis
ylog	boolean to request log10 y axis

Value

S3 ggplot

readTrackMateXML — *Read TrackMate XML output files.*

Description

Produces a data frame of all spots from filtered tracks, ordered by track number. A warning is generated if the scaling is in pixels rather than real units.

Usage

```
readTrackMateXML(XMLpath)
```

Arguments

XMLpath	path to the xml file

Value

data frame

Examples

```
xmlPath <- "~/Desktop/FakeTracks.xml"
data <- readTrackMateXML(XMLpath = xmlPath)
```

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