Package 'foto'

January 18, 2019

Title Fourier Transform Textural Ordination

Version 1.0.0

Description The Fourier Transform Textural Ordination method
uses a principal component analysis on radially averaged
two dimensional Fourier spectra to characterize image texture.

URL https://github.com/khufkens/foto

BugReports https://github.com/khufkens/foto/issues

Depends R (>= 3.4)

Imports raster, stats, grDevices

License AGPL-3

LazyData true

ByteCompile true

RoxygenNote 6.1.1

Suggests rgdal, knitr, rmarkdown, covr, testthat

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

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R topics documented:

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foto   *Calculates FOTO classification of texture*

Description

Note that the input matrix should be square or results will be discarded

Usage

```
foto(x, window_size = 61, method = "zones", plot = FALSE,
  norm_spec = TRUE)
```

Arguments

x	an image file, raster layer, stack or brick for multilayered images (RGB or otherwise) data are averaged to a single layer raster
window_size	a moving window size in pixels (default = 61 pixels)
method	zones (for discrete zones) or mw for a moving window approach
plot	plot output, bolean TRUE or FALSE
norm_spec	normalize radial spectrum, bolean TRUE or FALSE

Value

returns a radial spectrum for a moving window across a raster layer

See Also

rspectrum

Examples

```
# load demo data
r <- raster::raster(system.file("extdata", "yangambi.png", package = "foto",
    mustWork = TRUE))

# classify pixels using zones (discrete steps)
output <- foto(r,
               plot = TRUE,
               window_size = 25,
               method = "zones")

# print data structure
print(names(output))
```

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normalize	*Normalize a matrix or vector*

Description

Normalize values between 0 and 1, internal function only.

Usage

```
normalize(x)
```

Arguments

x   a matrix or vector

Value

returns a normalized matrix or vector

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rspectrum	*Calculates a radial spectrum*

Description

This is an internal function and not to be used stand-alone.

Usage

```
rspectrum(x, w, n = TRUE, env, ...)
```

Arguments

x	a square matrix
w	a moving window size
n	normalize, bolean TRUE or FALSE
env	local environment to evaluate
...	additional parameters to forward

Value

Returns a radial spectrum values for the image used in order to classify texture using a PCA (or other) analysis.

Index