Package 'Rsomoclu'

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Title R package for somoclu

Depends Rcpp

Imports

Suggests

Description Somoclu is a cluster-oriented implementation of self-organizing maps. It relies on MPI for distributing the workload, and it can be accelerated by CUDA on a GPU cluster. A sparse kernel is also included, which is useful for training maps on vector spaces generated in text mining processes.

URL http://peterwittek.github.io/somoclu/

BugReports https://github.com/peterwittek/somoclu/issues

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NeedsCompilation yes

Repository CRAN

SystemRequirements GNU make

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R topics documented:

rgbs *tiny rgbs data*

Description

tiny rgbs data for testing

Usage

```
rgbs
```

Format

matrix in plain text form

Rsomoclu.train *Train function for somoclu*

Description

A function call to somoclu to train the Self Organizing Map.

Usage

```
Rsomoclu.train(input_data, nEpoch,
           nSomX, nSomY,
           radius0, radiusN,
           radiusCooling, scale0, scaleN,
           scaleCooling, snapshots,
           kernelType, mapType
           )
```

Arguments

input_data	input data, matrix format
nEpoch	Maximum number of epochs
nSomX	Number of columns in map (size of SOM in direction x)
nSomY	Number of rows in map (size of SOM in direction y)
radius0	Start radius (default: half of the map in direction min(x,y))
radiusN	End radius (default: 1)
radiusCooling	Radius cooling strategy: linear or exponential (default: linear)
scale0	Starting learning rate (default: 1.0)
scaleN	Finishing learning rate (default: 0.01)

scaleCooling	Learning rate cooling strategy: linear or exponential (default: linear)
snapshots	Save interim files (default: 0): 0: Do not save interim files 1: Save U-matrix only 2: Also save codebook and best matching
kernelType	Kernel type 0: Dense CPU 1: Dense GPU 2: Sparse CPU
mapType	Map type: planar or toroid (default: planar)

Author(s)

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References

Peter Wittek (2013). Somoclu: An Efficient Distributed Library for Self-Organizing Maps. arXiv:1305.1422.

Examples

```
library('Rsomoclu')
data_file <- system.file("data", "rgbs.txt.gz", package = 'Rsomoclu')
input_data <- read.table(data_file)
input_data <- data.matrix(input_data)
nSomX <- 50
nSomY <- 50
nEpoch <- 10
radius0 <- 0
radiusN <- 0
radiusCooling <- "linear"
scale0 <- 0
scaleN <- 0.01
scaleCooling <- "linear"
kernelType <- 0
mapType <- "planar"
snapshots <- 0
res <- Rsomoclu.train(input_data, nEpoch, nSomX, nSomY,
               radius0, radiusN,
               radiusCooling, scale0, scaleN,
               scaleCooling, snapshots,
               kernelType, mapType)
res$codebook
res$globalBmus
res$uMatrix
```

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