Package ‘tsne’

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Type Package
Title T-Distributed Stochastic Neighbor Embedding for R (t-SNE)
Version 0.1-3.1
Date 2016-06-04
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Maintainer Justin Donaldson <jdonaldson@gmail.com>
Description A "pure R" implementation of the t-SNE algorithm.
License GPL
LazyLoad yes
NeedsCompilation no
URL https://github.com/jdonaldson/rtsne/
BugReports https://github.com/jdonaldson/rtsne/issues
Repository CRAN
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R topics documented:

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\begin{itemize}
\item tsne-package \hfill The tsne-package for multidimensional scaling
\end{itemize}

Description

This package contains one function called \texttt{tsne} which contains all the functionality.

Details
Author(s)

Justin Donaldson https://github.com/jdonaldson/rtsne Maintainer: Justin Donaldson (jdonaldson@gmail.com)

References


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**tsne**

*The t-SNE method for dimensionality reduction*

Description

Provides a simple function interface for specifying t-SNE dimensionality reduction on R matrices or "dist" objects.

Usage

```r
tsne(X, initial_config = NULL, k = 2, initial dims = 30, perplexity = 30,
    max_iter = 1000, min_cost = 0, epoch_callback = NULL, whiten = TRUE,
    epoch=100)
```

Arguments

- **X**: The R matrix or "dist" object
- **initial_config**: an argument providing a matrix specifying the initial embedding for X. See Details.
- **k**: the dimension of the resulting embedding.
- **initial_dims**: The number of dimensions to use in reduction method.
- **perplexity**: Perplexity parameter. (optimal number of neighbors)
- **max_iter**: Maximum number of iterations to perform.
min_cost The minimum cost value (error) to halt iteration.

epoch_callback A callback function used after each epoch (an epoch here means a set number of iterations)

whiten A boolean value indicating whether the matrix data should be whitened.

epoch The number of iterations in between update messages.

Details

When the initial_config argument is specified, the algorithm will automatically enter the final momentum stage. This stage has less large scale adjustment to the embedding, and is intended for small scale tweaking of positioning. This can greatly speed up the generation of embeddings for various similar X datasets, while also preserving overall embedding orientation.

Value

An R object containing a ydata embedding matrix, as well as a the matrix of probabilities P

Author(s)

Justin Donaldson (jdonaldson@gmail.com)

References


See Also

dist

Examples

```r
## Not run:
colors = rainbow(length(unique(iris$Species)))
names(colors) = unique(iris$Species)
cecb = function(x,y){ plot(x,t='n'); text(x,labels=iris$Species, col=colors[iris$Species]) }
tsne_iris = tsne(iris[,1:4], epoch_callback = ecb, perplexity=50)

# compare to PCA
dev.new()
pca_iris = princomp(iris[,1:4])$scores[,1:2]
plot(pca_iris, t='n')
text(pca_iris, labels=iris$Species, col=colors[iris$Species])

## End(Not run)
```
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