Package 'VertexSimilarity'

January 24, 2016

Version 0.1

Title Creates Vertex Similarity Matrix for an Undirected Graph

Description Creates Vertex Similarity matrix of an undirected graph based on the method stated by E. A. Leicht, Petter Holme, AND M. E. J. Newman in their paper <DOI:10.1103/PhysRevE.73.026120>.

Imports igraph

License GPL-2

LazyData true

Author Rishabh Singh

Maintainer Rishabh Singh<rishabhsinghrsg@gmail.com>

NeedsCompilation no

Repository CRAN

Date/Publication 2016-01-24 21:37:10

R topics documented:

`VertexSimilarity` *Vertex Similarity*

Description

Returns Vertex Similarity matrix of undirected grahp based on the method stated by E. A. Leicht, Petter Holme, AND M. E. J. Newman <DOI:10.1103/PhysRevE.73.026120>

Usage

```
VertexSimilarity(m,alpha=0.97)
```

Arguments

m	Adjacency matrix of the graph
alpha	It tells the contribution of long paths relative to short ones.For, 0 < alpha < 1, similarity measure considers vertices to be more similar if they have a greater than expected number of short paths between them, than if they have a greater than expected number of long ones.

Details

This method is based on the idea that a pair of vertices i,j are similar to each other if any pair u,v of their neighbours is similar. Using this method we can even find similarity values for the vertices that are not directly connected.

Examples

```
m <- matrix(c(1,0,0,0,0,1,1,1,1),ncol=3,nrow=3,byrow=TRUE)
SimilarityMatrix <- VertexSimilarity(m,alpha=0.85)
```

Index