Package 'dynetNLAResistance'

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Type Package

Title Resisting Neighbor Label Attack in a Dynamic Network

Version 0.1.0

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Description An anonymization algorithm to resist neighbor label attack in a dynamic network.

Depends R (>= 2.10)

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LazyData true

Suggests testthat

Imports igraph, doParallel, foreach, grDevices, graphics, utils, parallel

RoxygenNote 5.0.1

NeedsCompilation no

Repository CRAN

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R topics documented:

anonymization *Anonymize a snapshot of a dynamic network.*

Description

Anonymize a snapshot of a dynamic network.

Usage

```
anonymization(g, alpha = 1, beta = 2, gamma = 3)
```

Arguments

g	A network grouped by lw-grouping algorithm.
alpha	Weight of anonymization cost resulted from label generalization.
beta	Weight of anonymization cost resulted from adding edges.
gamma	Weight of anonymization cost resulted from adding nodes.

anonymize2node *Anonymize two node.*

Description

Anonymize two node.

Usage

```
anonymize2node(g, uid, vid, noise = g$noise)
```

Arguments

g	A graph contains vertexs with different labels and some of which are sensitive.
uid	Name of a node with sensitive label.
vid	Name of a node with unsensitive label.
noise	Current amount of noise nodes.

Value

A list with information of anonymized network.

cost *Calculate anonymization cost of two nodes.*

Description

Calculate anonymization cost of two nodes.

Usage

```
cost(g, uid, vid, alpha = 1, beta = 2, gamma = 3)
```

Arguments

g	A graph contains vertexs with different labels and some of which are sensitive.
uid	Name of a node with sensitive label.
vid	Name of a node with unsensitive label.
alpha	Weight of anonymization cost resulted from label generalization.
beta	Weight of anonymization cost resulted from adding edges.
gamma	Weight of anonymization cost resulted from adding nodes.

Value

Anonymization cost of two nodes.

draw.graph *Draw a graph contains vertexs with sensitive or unsensitive label*

Description

Draw a graph contains vertexs with sensitive or unsensitive label

Usage

```
draw.graph(g, main = NULL, label = NA)
```

Arguments

g	A graph contains vertexs with different labels and some of which are sensitive.
main	The title of graph.
label	Label of vertexs.

Examples

```
dynet <- make.virtual.dynamic.network()
draw.graph(dynet$t1)
```

lw.grouping *Generate a grouped dynamic network by lw-grouping algorithm.*

Description

Generate a grouped dynamic network by lw-grouping algorithm.

Usage

```
lw.grouping(dynet = NULL, l = 2, w = 3)
```

Arguments

dynet	An ungrouped dynamic network.
l	Kinds of labels in each unmerged group.
w	Width of window of lw-grouping algorithm.

Value

A list of grouped network with attribute of gs.merged.

make.virtual.dynamic.network *Make a vertex-increasing virtual dynamic network.*

Description

Make a vertex-increasing virtual dynamic network.

Usage

```
make.virtual.dynamic.network(network.data = NULL, len = 10, by = 5,
  label.types = 100, prop.init = 0.001, prop.sensitive = 0.1)
```

Arguments

network.data	A data frame containing a symbolic edge list,which contains the information of whole network data.
len	Time of this dynamic network lasts.
by	The number of vertex added in network each time.
label.types	The number of label types the network possesses.
prop.init	The proportion of vertex amounts of initial network in whole network data.
prop.sensitive	The proportion of amounts of vertex with sensitive label in whole network data.

Value

A list of snapshots of a virtual dynamic network.

Examples

```
dynet <- make.virtual.dynamic.network()
```

`network` *Unirected graph: CA-CondMat*

Description

Collaboration network of Arxiv Condensed Matter category (there is an edge if authors coauthored at least one paper) network

Usage

```
network
```

Format

An object of class `data.frame` with 93439 rows and 2 columns.

Details

@format A data frame with 93439 rows and 2 variables:

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