Package 'dress.graph'

February 25, 2026

Type Package

Title Diffusive Recursive Structural Similarity on Graphs

Version 0.1.2

Description Compute per-edge similarity values on graphs using the DRESS (Diffusive Recursive Structural Similarity) algorithm. Supports weighted/unweighted and directed/undirected graphs. Iterative fixed-point fitting converges to stable edge scores that capture neighbourhood overlap structure.

License MIT + file LICENSE

Encoding UTF-8

NeedsCompilation yes

SystemRequirements OpenMP

Author Eduar Castrillo Velilla [aut, cre]

Maintainer Eduar Castrillo Velilla <velicast@outlook.com>

Repository CRAN

Date/Publication 2026-02-25 19:00:08 UTC

Contents

`dress_fit` *Compute DRESS Edge Similarity on Graphs*

Description

Build a DRESS graph from an edge list and run iterative fitting to compute per-edge structural similarity values.

Usage

```
dress_fit(n_vertices, sources, targets, weights = NULL,
          variant = DRESS_UNDIRECTED, max_iterations = 100L,
          epsilon = 1e-6, precompute_intercepts = FALSE)

dress_version()

DRESS_UNDIRECTED
DRESS_DIRECTED
DRESS_FORWARD
DRESS_BACKWARD
```

Arguments

n_vertices	Integer. Number of vertices (vertex ids must be in 0 .. n_vertices - 1).
sources	Integer vector of length E – edge source endpoints (0-based).
targets	Integer vector of length E – edge target endpoints (0-based).
weights	Optional numeric vector of length E – per-edge weights. NULL (default) gives every edge weight 1.
variant	Graph variant (default DRESS_UNDIRECTED). One of DRESS_UNDIRECTED (0), DRESS_DIRECTED (1), DRESS_FORWARD (2), DRESS_BACKWARD (3).
max_iterations	Maximum number of fitting iterations (default 100).
epsilon	Convergence threshold – stop when the max per-edge change falls below this value (default 1e-6).
precompute_intercepts	Logical. Pre-compute common-neighbor index for faster iteration at the cost of more memory (default FALSE).

Value

A list with components:

sources	Integer vector [E] – edge source endpoints (0-based).
targets	Integer vector [E] – edge target endpoints (0-based).
edge_dress	Numeric vector [E] – DRESS similarity per edge.
edge_weight	Numeric vector [E] – variant-specific weight.
node_dress	Numeric vector [N] – per-node norm.
iterations	Integer – number of iterations performed.
delta	Numeric – final max per-edge change.

References

E. Castrillo, E. Leon, J. Gomez. Dynamic Structural Similarity on Graphs. arXiv:1805.01419, 2018.

Examples

```
# Triangle + pendant: 0-1, 1-2, 2-0, 2-3
res <- dress_fit(4L, c(0L,1L,2L,2L), c(1L,2L,0L,3L))
res$edge_dress
```

Index