CommunityAlg reference manual
Version 0.1

Carlo Nicolini

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Functions list

ami.m

Returns the adjusted mutual information between two membership vectors.

association_score.m

Returns the association score between pairs of communities specified by the graph and membership.

asymptotic_modularity.m

Compute asymptotic modularity of a graph with respect to a membership vector.

asymptotic_modularity_sum.m

TODO

asymptotic_surprise.m

Compute asymptotic surprise of a graph with respect to a membership vector.

clique.m

Generate an adjacency matrix of a clique graph with n nodes.

cluster_similarity.m

Compare two membership vectors.

clustering_entropy.m

Compute the clustering entropy of an agreement matrix as in "Gfeller, Newman, 2006".

community_robustness_weighted.m

TODO

community_size2memb.m

Convert an array where every element is the size of a clique to the correspondig membership vector.

comm_mat.m

Returns the block matrix of a graph and its community structure as membership.

compute_surprise.m

Compute the surprise given surprise paramenters.

consensus_clustering.m

TODO

consensus_clustering_weighted.m

TODO

consensus_entropy.m

TODO

consensus_robustness.m

TODO

correlation_louvain.m

Adaptation of the BCT `community_louvain` method for correlation matrices, as described in MacMahon,2015.

count_comm.m

Plot the histogram with the community size given a membership vector.

cycle_graph.m

Generate the adjacency matrix of a cycle graph with n nodes.

effcommplot.m

TODO

generate_agreement.m

Generate the agreement matrix for a given community detection method.

generate_agreement_weighted.m

Generate the weighted agreement matrix for a given community detection method.

generate_connected_components.m

TODO

graph_JS_similarity.m

Compute the quantum Jensen Shannon divergence between two adjacency matrices.

graph_laplacian.m

Compute the graph combinatorial Laplacian matrix `L=D-A`.

group2membership.m

Convert a cell of arrays representing the nodes in the communities to a membership vector.

image_to_network.m

Convert a gray index image to its corresponding adjacency graph.

imagesctxt.m

Show a matrix like `imagesc` but with text values of elements displayed on the pixels.

isoctave.m

Returns true if using Octave, false if using Matlab.

jensen_shannon_sim.m

Returns the Jensen-Shannon symmetrized information theoretic distance between two graph Laplacians.

k_regular.m

Generate a `k`-regular graph, a graph where the degree of every vertex is `k`.

KL.m

Returns the binary Kullback-Leibler divergence between Bernoulli distribution `p` and `q`.

kullback_leibler_sim.m

Returns the Kullback-Leibler divergence between two graph Laplacians.

logHyperProbability.m

Compute the logarithm of the hypergeometric probability in base 10.

membership2groups.m

Convert a membership vector to a cell of arrays of nodes in every community.

membership_agreement.m

DEPRECATE

membership_similarity.m

TODO

method_best.m

Functio handle to the community detection method that returns the best value over a set of repetitions.

modularity.m

Returns the modularity of a graph with respect to a membership vector.

nearcorr.m

Returns the nearest correlation matrix of a square matrix. Implementation by Nick Higham.

nearestSPD.m

Returns the positive definite matrix of a square matrix. Implementation by Nick Higham.

norm_conf_mat.m

DEPRECATE

number_connected_components.m

Returns the number of connected components of a graph.

number_of_edges.m

Returns the number of edges of a binary or weighted graph.

paco.m

Function handle to the MEX implementation of PACO.

partition_params.m

Returns the partition parameters for use with `compute_surprise`.

quantum_density.m

Returns the quantum density of a graph, `Brauenstein et al.` "Ann. of Combinatorics, 10, no 3 (2006), 291-317."

reindex_membership.m

Transform a membership vector to have community indices sorted by community size from 1 to $|C|$

reorder_membership.m

Linearize a membership vector to have continuous indices of communities from 1 to $|C|$

ring_of_cliques.m

Returns a network ring of cliques, with given number of cliques and clique size and its membership.

ring_of_custom_cliques.m

Returns a network ring of cliques, with given size of cliques specified as input and its membership.

rmtdecompose.m

Returns the Random Matrix Theory decomposition of a correlation matrix.

robustness_configuration_interp_und.m

robustness_edge_weight_und.m

run_cluster_similarity.m

rwalkent.m

Returns the random walk entropy of a graph as in `Estrada et al.` Walk entropies in graphs, "Linear Algebra and its Applications 443 (2014) 235–244"

significance.m

Returns the significance of a graph partitioning, `Traag (2013)`.

smi.m

Returns the standardized mutual information of two membership vectors.

sort_group_by_size.m

Sort community groups by size.

star_of_custom_cliques.m

Returns a star of cliques, every clique is connected to all other cliques with one edge.

surprise.m

Returns the surprise of a graph partitioning.

threshold_by_giant_component.m

Returns the threshold over which the graph has more than one connected component.

threshold_by_num_edges.m

Returns a graph thresholded to have a specific number of edges.

vonneumann_entropy.m

Returns the VonNeumann quantum entropy of graph Brauenstein et al. "Ann. of Combinatorics, 10, no 3 (2006), 291-317."

write_brainet.m

Write a graph with coordinates of nodes and membership to Brainet format.

write_brainet_community.m

TODO

writetoEdgesList.m

TODO

writetoPAJ_labels.m

writetoPAJ_labels_coords.m