gesvd_result

NAME

gesvd_result - a structure to model the output of frovedis singular value decomposition methods.

SYNOPSIS

import frovedis.matrix.results.GesvdResult

Public Member Functions

to_numpy_results()
save(svec, umat=None, vmat=None)
save_binary(svec, umat=None, vmat=None)
load (svec, umat=None, vmat=None, mtype='B')
load_binary (svec, umat=None, vmat=None, mtype='B')
debug_print()
release()
stat()
getK()

DESCRIPTION

GesvdResult is a python side pseudo result structure containing the proxies of the in-memory SVD results created at frovedis server side. It can be used to convert the frovedis side SVD result to python equivalent data structures.

Public Member Function Documentation

to_numpy_results()

Purpose
This function can be used to convert the frovedis side SVD results to python numpy result structures.

If U and V both are computed, it returns: (numpy matrix, numpy array, numpy matrix)
indicating (umatrix, singular vector, vmatrix).

When U is calculated, but not V, it returns: (numpy matrix, numpy array, None)
When V is calculated, but not U, it returns: (None, numpy array, numpy matrix)
When neither U nor V is calculated, it returns: (None, numpy array, None)

Return Type
It returns a tuple as explained above.

save(svec, umat=None, vmat=None)

Parameters
svec: A string object containing name of the file to save singular vectors as text data. (mandatory)
umat: A string object containing name of the file to save umatrix as text data. (optional)
vmat: A string object containing name of the file to save vmatrix as text data. (ptional)

Purpose
This function can be used to save the result values in different text files at server side. If saving of U and V components are not required, "umat" and "vmat" can be None, but "svec" should have a valid filename.

Return Type
It returns nothing.

save_binary (svec, umat=None, vmat=None)

Parameters
svec: A string object containing name of the file to save singular vectors as binary data. (mandatory)
umat: A string object containing name of the file to save umatrix as binary data. (optional)
vmat: A string object containing name of the file to save vmatrix as binary data. (optional)

Purpose
This function can be used to save the result values in different files as little-endian binary data at server side. If saving of U and V components are not required, "umat" and "vmat" can be None, but "svec" should have a valid filename.

Return Type
It returns nothing.

load(svec, umat=None, vmat=None, mtype='B')

Parameters
svec: A string object containing name of the file from which to load singular vectors as text data for the target result. (mandatory)
umat: A string object containing name of the file from which to load umatrix as text data for the target result. (optional)
vmat: A string object containing name of the file from which to load vmatrix as text data for the target result. (optional)
mtype: A character value, can be either 'B' or 'C'. (optional)

Purpose
This function can be used to load the result values in different text files at server side. If loading of U and V components are not required, "umat" and "vmat" can be None, but "svec" should have a valid filename.

If mtype = 'B' and umat/vmat is to be loaded, then they will be loaded as blockcyclic matrices at server side.

If mtype = 'C' and umat/vmat is to be loaded, then they will be loaded as colmajor matrices at server side.

Return Type
It returns nothing.

load_binary(svec, umat=None, vmat=None, mtype='B')

Parameters
svec: A string object containing name of the file from which to load singular vectors as binary data for the target result. (mandatory)
umat: A string object containing name of the file from which to load umatrix as binary data for the target result. (optional)
vmat: A string object containing name of the file from which to load vmatrix as binary data for the target result. (optional)
mtype: A character value, can be either 'B' or 'C'. (optional)

Purpose
This function can be used to load the result values in different little-endian binary files at server side. If loading of U and V components are not required, "umat" and "vmat" can be None, but "svec" should have a valid filename.

If mtype = 'B' and umat/vmat is to be loaded, then they will be loaded as blockcyclic matrices at server side.

If mtype = 'C' and umat/vmat is to be loaded, then they will be loaded as colmajor matrices at server side.

Return Type
It returns nothing.

debug_print()

Purpose
This function can be used to print the result components at server side user terminal. This is useful in debugging purpose.

Return Type
It returns nothing.

release()

Purpose
This function can be used to release the in-memory result components at frovedis server.

Return Type
It returns nothing.

stat()

Purpose
This function returns the exit status of the scalapack native gesvd routine on calling of which the target result object was obtained.

Return Type
An integer value.

getK()

Purpose
This function returns the number of singular values computed.

Return Type
An integer value.