SPARSE_GRID
A Python Sparse Grid Package

SPARSE_GRID is a PYTHON library useful for sparse grid calculations.

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Related Data and Programs:

SMOLPACK, a C library which estimates the integral of a function over a M-dimensional hypercube using a sparse grid, by Knut Petras;

SPARSE_GRID_CC, a MATLAB library which creates sparse grids based on Clenshaw-Curtis rules.

SPARSE_GRID_HW, a MATLAB library which creates sparse grids based on Gauss-Legendre, Gauss-Hermite, Gauss-Patterson, or a nested variation of Gauss-Hermite rules, by Florian Heiss and Viktor Winschel.

SPINTERP, a MATLAB library which carries out piecewise multilinear hierarchical sparse grid interpolation; an earlier version of this software is ACM TOMS Algorithm 847, by Andreas Klimke;

SPQUAD, a MATLAB library which computes the points and weights of a sparse grid quadrature rule for a multidimensional integral, based on the Clenshaw-Curtis quadrature rule, by Greg von Winckel.

Reference:

1. Jochen Garcke,
   Sparse Grid Tutorial.
2. Sergey Smolyak,
   Quadrature and Interpolation Formulas for Tensor Products of Certain Classes of Functions,
   Doklady Akademii Nauk SSSR,
   Volume 4, 1963, pages 240-243.

Source Code:

- pysg.py, defines the sparse grid classes and functions.

Examples and Tests:

- pysg_test.py, runs a test of the sparse grid routines.
- pysg_test.sh, commands to run the test.
- pysg_test_output.txt, the output file.

You can go up one level to the PYTHON source codes.

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