PLY_IO
Read or Write a PLY File

PLY_IO is a MATLAB library which reads or writes data describing a polygonal mesh in a **PLY** file.

A **PLY** file contains a sophisticated data structure describing a polygonal surface. A triangulated mesh is a very simply case of such a surface; a **PLY** file can also describe a mesh surface involving higher order polygons, and it can contain auxilliary information about normal vectors and so on.

A **TRI_MESH** or triangulated mesh surface, is described by a pair of arrays:

- a **node coordinate** array containing the coordinates of nodes;
- a **triangle node** array containing triples of the indices of the nodes used to form each triangle;

Licensing:

The computer code and data files described and made available on this web page are distributed under the GNU LGPL license.

Languages:

PLY_IO is available in a C version and a MATLAB version,

Related Data and Programs:

BEZIER_SURFACE_DISPLAY, a MATLAB program which reads two files defining a Bezier surface and displays it.

FEM_BASIS_T3_DISPLAY, a MATLAB program which displays a basis function associated with a linear triangle ("T3") mesh.

FEM_BASIS_T6_DISPLAY, a MATLAB program which reads a quadratic triangle mesh and displays any associated basis function.

OBJ_TO_PLY, a C program which converts an Wavefront OBJ file to PLY format.

PLATO_PLY, a C program which creates a Platonic solid and writes it to an ASCII PLY file, by Greg Turk.

PLY, a data directory which contains a description and examples of **PLY** files.

PLY_DISPLAY, a MATLAB program which displays an image of a 3D graphics file in PLY format;

PLY_TO_IV, a C program which converts a PLY file to INVENTOR format.

PLY_TO_OBJ, a C program which reads a PLY 3D graphics file and writes an equivalent OBJ graphics file.

POLYGONAL_SURFACE, a data directory which contains examples of polygonal surface files.

STLA_DISPLAY, a MATLAB program which reads an ASCII **STL** file and displays it.

TRIANGULATION_DISPLAY_OPENGL, a C++ program which reads files defining a triangulation and displays an image using OpenGL.

Author:

The original versions of the files **PLY_READ.M**. **PLY_WRITE.M** and **PLY_TO_TRI_MESH.M** were created by Pascal Getreuer.

Source Code:

- i4mat_transpose_print_some.m, prints some of the transpose of an I4MAT.
- ply_read.m reads a **PLY** file.
- ply_write.m writes a **PLY** file.
- ply_to_tri_mesh.m converts **PLY** data to **TRI_MESH** data.
- r8mat_transpose_print_some.m, prints some of the transpose of an R8MAT.
- s_len_trim.m returns the length of a string to the last nonblank.
- timestamp.m prints the current YMDHMS date as a time stamp.
- tri_mesh_to_ply.m converts **TRI_MESH** data to **PLY** data.

Examples and Tests:

- ply_io_test.m runs all the tests.
- ply_io_test_output.txt the output file.
- ply_io_test01.m converts data defining a pyramid as a triangular mesh into a PLY data structure, and used **PLY_WRITE** to write it to a file.
- ply_io_test02.m reads a **PLY** file defining a sphere, extracts the data, and displays it.
- pyramid.ply the **PLY** file defining a pyramid.
- pyramid.png a PNG image of MATLAB's display of the pyramid.
- sphere.ply the **PLY** file defining a sphere.
- sphere.png a PNG image of MATLAB's display of the sphere.

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

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