

This file contains information about the Layer Peeling code developed at the School of Computing, The National University of Singapore.

PROGRAM NAME

LayerPeeling - This program outputs a watertight piecewise linear interpolation of a 3d point set.

DESCRIPTION

This program first reads in an input file which consists of a 3d point set. Based on the 3d coordinates of the input point set, the program applies the layer peeling algorithm on the point set and produces a 3d closed manifold. This algorithm is based on the paper "Surface Reconstruction by Layer Peeling" by C.W Lim and T.S Tan. This work was published at Pacific Graphics 2006 Conference; for more details, see the webpage at www.comp.nus.edu.sg/~tants/layerPeeling.html.

There are 4 parameters to the algorithm under "Options":

Single Manifold - The algorithm might produce more than 1 connected component in the output. By selecting "yes", the algorithm will search and store the largest connected component, while removing all the smaller ones.

Sub-sampling - Some point sets have points in almost exact coordinates, making the construction of the triangle fan to be extremely problematic. Based on a local estimate of the sampling density (distance to the 16th nearest neighbor), the algorithm will remove points which are within a selected percentage of the distance.

Number of Layers - The user can choose to construct only a stated number of layers.

Smooth Manifold - Removes faces which are particularly sharp.

INPUT FILE

The input file must be a text file that contains 3d coordinates of the sample point set. Each line of text in the file contains the 3d coordinates of one point in the point set. The coordinates can be separated by either whitespaces or tab character.

Create/Maintain a folder called "Point" in the same directory. Temporary files are stored there.

OUTPUT FILE

By default, the output of the layer peeling algorithm is saved in the folder "Point", under the filename "outOFFFile.ply". The user, however, can use the program to save the output under a different filename at a different location.

PLY format files can be opened by programs such as 3D studio max or Deep Exploration.

OTHER FILES

This program might need other dll in order to run.

For opengl, <http://www.opengl.org/resources/faq/technical/gettingstarted.htm>

For ANN, which is the program we use to compute the neighborhood,

<http://www.cs.umd.edu/~mount/ANN/>. The version that is used in this program is 1.1.