Qmorf

Qmorf was written by Gavin Bell to demonstrate the capabilities of *Open Inventor* and Silicon Graphics workstations.

Qmorf reads in Inventor model files and extracts geometry, texture and material information from the files. It then creates an intermediate geometry that is a combination of two of the files.

Qmorf is not related to other morphing programs (like the program used to produce the effects in Michael Jackson's "Black or White" video). Those programs use image warping techniques to modify 2D images; this program actually modifies an object's 3D geometry.

Currently, qmorf is only able to interpolate between files that contain quad meshes with 40 by 40 vertices (1521 quads). Standard C++ code is used to linearly interpolate the positions of the vertices of the intermediate geometry. *Open Inventor* is used to linearly interpolate the objects' textures or materials. The intermediate geometry is drawn twice, first with the first set of materials or textures or materials applied. Then the object is drawn again with the second set of materials or textures applied, modified to be semi–transparent. *Open Inventor* (using *OpenGL*) blends the semi–transparent object with the already drawn geometry. By varying the level of transparency, a smooth fade from one object's texture to the next is achieved.

The background is derived from code originally written by Drew Olbrich. It is a 21 by 21 quad mesh (400 quads) with a different material at each vertex. The positions of the vertices are determined by a variety of mathematical functions, while the colors are determined by a fractal noise function. The positions and colors are edited each frame of the animation, interpolating from one set of positions and colors to the next.

The total number of quads in any given frame is 3,442 (1552*2+400). The main window of the program is the standard Inventor Examiner Viewer component.

Textures are automatically turned off if too slow!

Credits:

Data for the faces courtesy of: Cyberware Laboratory Inc.
Data for the earth texture map courtesy of:
Tom Van Sant and the GEOSPHERE PROJECT; All rights reserved by Tom Van Sant, Inc.
Thanx to Rick Pasetto for the use of his head.

Qmorf SOURCE is included with the Inventor Toolkit!