

How to use:

Press Load Skeleton button to load a skeleton JSON file, then loadObj is located in the menu bar under File. After both operations, select 0 - hip in the display window to the right of graphics display window, then press Bind Mesh, you should be able to see that cow's color "shifts" a little bit and then you can toggle around with all the deformations using translation(3 double spin boxes) and rotation(-, + boxes).

Each time when you select a different joint, the transformation information(x, y, z value)will be updated in 3 double spin boxed.

Conceptual questions:

1. (5 pts) What visual errors may occur when using linear blend skinning for a mesh? Why do these errors occur?

Answer:

If we use linear blend skinning, it will cause scale skewing to occur and it doesn't preserve volume very well, therefore, the mesh will collapse as joints are rotated. This is because the numbers no longer represent sine/cosine outputs.

2. (5 pts) Since one cannot insert breakpoints into a GLSL shader program, how might one debug a shader? For example, if one were writing a vertex shader that applies a mesh skinning deformation, how might one determine which vertices are influenced by a particular joint? Consider what alterations to your fragment shader might be useful to test this.

Answer:

One of the best way we may use to to use some debugging tool like glslDevil or other tools. Alternatively, we could use printf to output text or something visually distinctive to the screen, like some specific color.