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Project 3: Fishing Penguin 3D Lighting

Description

The animation consists of two assemblies. A penguin is constructed with six different meshes: a stomach, hand, foot, nose, and body. The fishing rod is constructed using a rod mesh, a bob mesh, and a fishing line mesh.

The hand is animated to rotate on the y-axis by default and the feet on the x-axis. The body and entirety of both assemblies rotate slightly on all three axes simultaneously to make the movement more organic.

There is lighting located roughly at the stomach level of the penguin that illuminates the assembly. It can be moved on the x-axes. The additional lighting feature is a texture applied to the rod to mimic the appearance of wood.

This should be run using 'python -m http.server.'

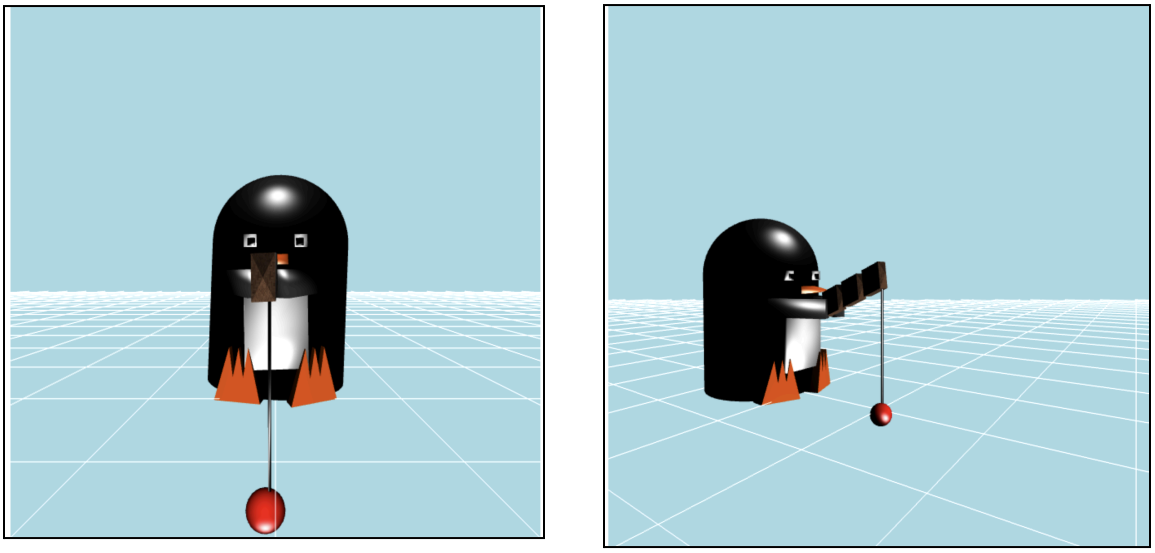

Figure 1. Penguin Animation in Two Positions.

Files

a6.js:

This file contains the shaders, a few meshes, all of the WebGL required for display and animation, as well as the Javascript to update the slider text.

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a6.html:
This file contains the html for the website, consisting of the canvas and the slider, and is used to display the result.

Obj.js
This file contains the code necessary to convert the obj file (input as string) into an array of normals and textures.

Wood.png
This file contains the texture for the fishing rod.

Interaction
Movement of the camera is possible by using the WASD to move in the XY plane. The camera can also be slightly rotated by using the Z and X keys. The lighting position can be changed on the x-axis by using the T and Y keys. Pressing space also switches between the orthogonal and perspective cameras.

Beyond that, the user can interact by clicking and dragging in a vertical direction anywhere on the screen to raise and lower the fishing rod through rotation.

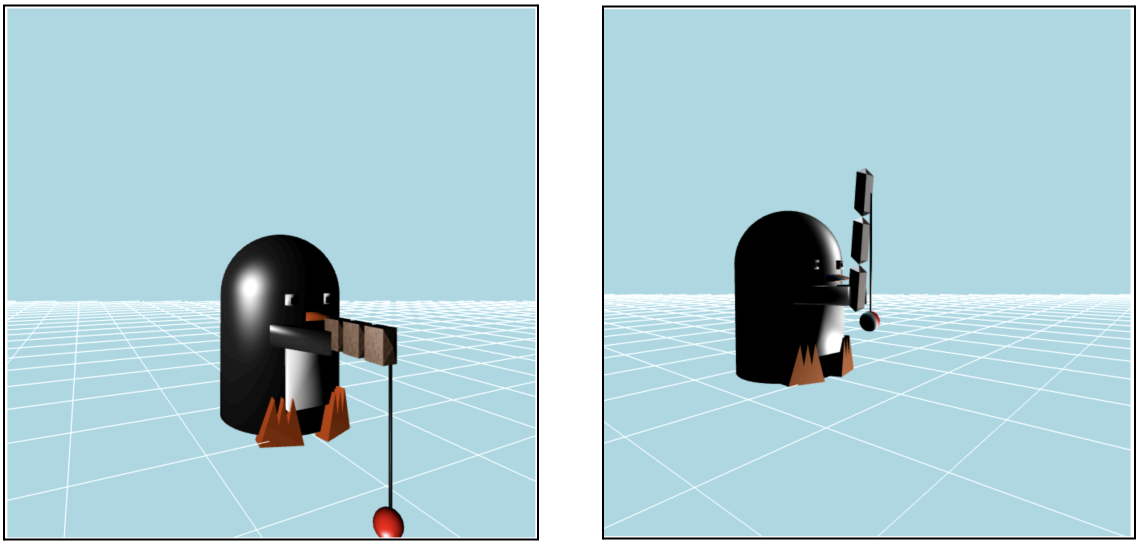

Figure 2. Penguin Animation Before and After Moving Rod and Light