Parker Whaley

HW3

For this project I went on a slightly different path. I've made a procedurally generated scene that generates an entirely new world each time the code is run. Basically it creates a mountain using random two dimensional Fourier transforms, and then randomly places a village at the base of the mountain with a forest surrounding it.

The basic controls are:

- Click and drag with the left mouse button to turn around or look up or down.
- w to move forward
- s to back up
- d,a to rotate

There are actually two trees to generate objects. There is a runtime tree; I use this for generating multiple houses, or trees. There are also initialization trees that use linked lists of vertecis to produce an image that is then put in a buffer, there are two of these, a tree and a house.

The mountain and surrounding landscape is the biggest feature of this world. The height of the mountain is given at a vertex (x,y) by the equation $\approx \sin(\pi x) * \sin(\pi y) + \sum\sum c_{nm} \sin(\pi(3+2n)x) * \sin(\pi(3+2m)x)$. Where the c_{nm} are random but small. The color of the mountain is then specified by the height.