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 ≈sin(πx) \*sin(πy)+∑∑cnmsin(π(3+2n)x)\* sin(π(3+2m)x). Where the cnm are random but small. The color of the mountain is then specified by the height.