

CS3110 Project Proposal 1

Objectives

- To demonstrate my understanding of the concepts taught in CS3110, some of which include:
 - 3D Shapes
 - Transformations and Viewing Transformations
 - Texturing
 - Vertex and Fragment Shaders
 - Buffers
 - Clipping
 - Input Operations (i.e. Buttons, Keyboard, Sliders, etc.)
- Some algorithms/techniques to be utilized include:
 - Drawing a sphere utilizing the x, y, and z axes
 - Orbiting objects around a center point
 - Changing the speed and direction of orientation
 - Increasing the distance between objects and a center point at a fixed interval
 - Increasing the object count in a predictable fashion
 - Rotating the image clockwise and counterclockwise

Statement

For my project, I want to develop a graphical representation of the Niels Bohr model of the atom. The Bohr atomic model was proposed by Niels Bohr in 1915. Electrons orbit a nucleus at different states or levels, and these levels have a fixed difference between them. More information about the Bohr's atomic model can be found [here](#).

I want to simulate a Hydrogen atom and provide the ability to add protons, electrons, and neutrons to the atom, thus changing what element the atom is. Addition of these subatomic particles will adhere to the Bohr model's guidelines (i.e. $n = 1$ has 2 electrons, $n = 2$ has 8 electrons, and so on). I also want to be able to simulate an atom in its excited state (i.e. an electron temporarily occupying a higher energy level). The simulation will provide the ability to rotate (~~z-axis fixed eyeX~~), zoom, and change the speed as well as the direction of the electrons orbiting the nucleus of the atom.

Image

