

Introduction

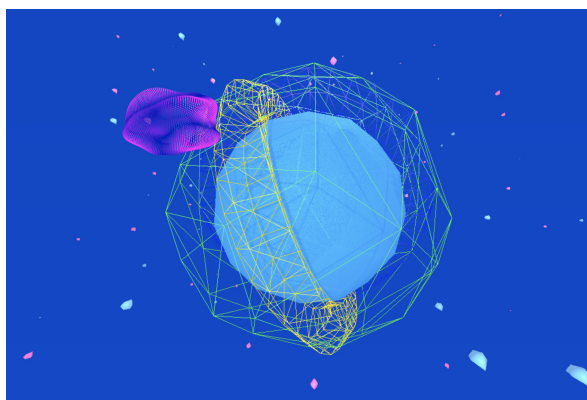
This is my final project for the course Coding One, I saw in the previous class that the students had created a very interesting irregular sphere that looked very much like a meteorite in space. I've loved the Stars since I was a kid, so I chose the universe as my theme.

The Earth is just a planet in the Solar System, and the Solar System is just a small part of the Milky Way, and there are many mysteries in the universe that have yet to be solved. People have always imagined the universe, there are all kinds of mysterious objects in the universe, I would like to one day, can fly a spacecraft to travel in space, fly out of the Solar System to explore the universe, i think it's possible to have objects of any shape or color in the universe. So I designed two objects that change from a circle, one with a shape and one with an irregular shape.

In the picture are two tangible objects moving in the universe. The tangible objects are constantly rotating and flying in the universe, and they can transform into different irregular shapes with time. Two tangible objects fly through the infinite universe and never stop.

The content of this semester is very difficult and complex, we learned polar coordinate system-draw a circle, two-dimensional waveform, image processing, convolution, create 3D graphics engine, WebGL, and so on a lot of knowledge. I try to reflect as much as I've learned this semester in my work. So this project is based on what we learned this semester, using WebGL, ThreeJS to create scenes, objects, and point lights. The scene creates spheres, torus, and an irregular planet with convolutional effects and a time-varying orthographic transformation using GLSL.

The following is a picture of the project



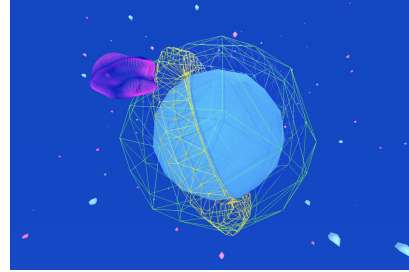
Interactive:

The user can zoom in and out of the scene with the mouse wheel, and can also change the angle of the camera lens with the left mouse button. The object on the left will

automatically rotate as the mouse moves. Clicking the mouse can move the object on the right, through the mouse control from different angles to see the two planets. And it can change the size of the two planets, giving us a picture of the planet as it comes closer and closer to us.



Far



Near

For more video on this project visit: <https://youtu.be/k-04-p-nRHI>

It's a limited level now, but I want to enrich this picture of the universe in the future. To create more different planets moving around in this space. In addition to parallel orbits, planets can also collide with each other, creating more small stars, which can also orbit and rotate around larger ones.