

Assignment 2  
CSCI4110u  
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Refraction eta 1.52 with not reflection

In order to obtain this result, I used refract instead of reflect to calculate the texture coordinates.



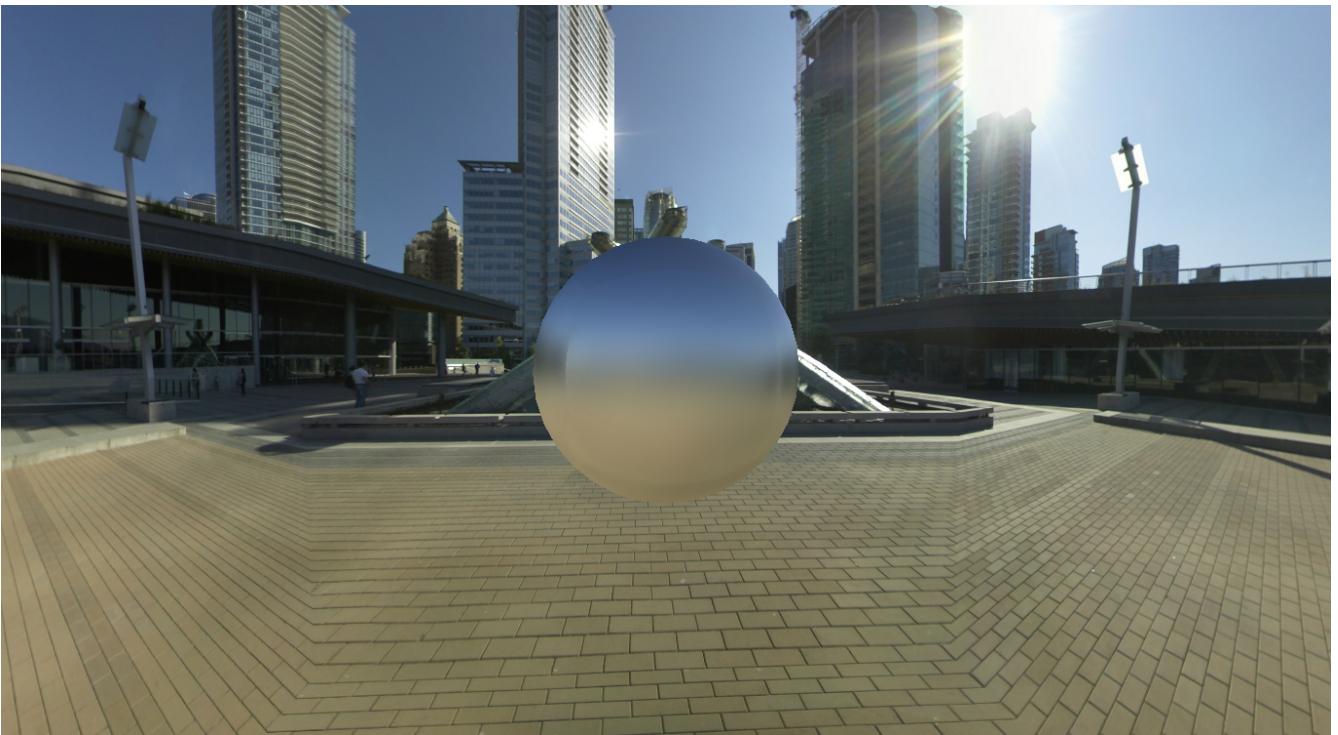
Refraction with eta 1.52 and reflection

In order to obtain this results, I calculated reflect and refract, and used the reflect to calculate Schlick's approximation. Then, the colour is calculated by sampling the texture using the reflection and then multiplied it by Schlick's approximation and then sampling the texture using the refraction and then multiplied it by 1 minus Schlick's approximation and then adding the two together. The code used to obtain this result is commented out in the shader.



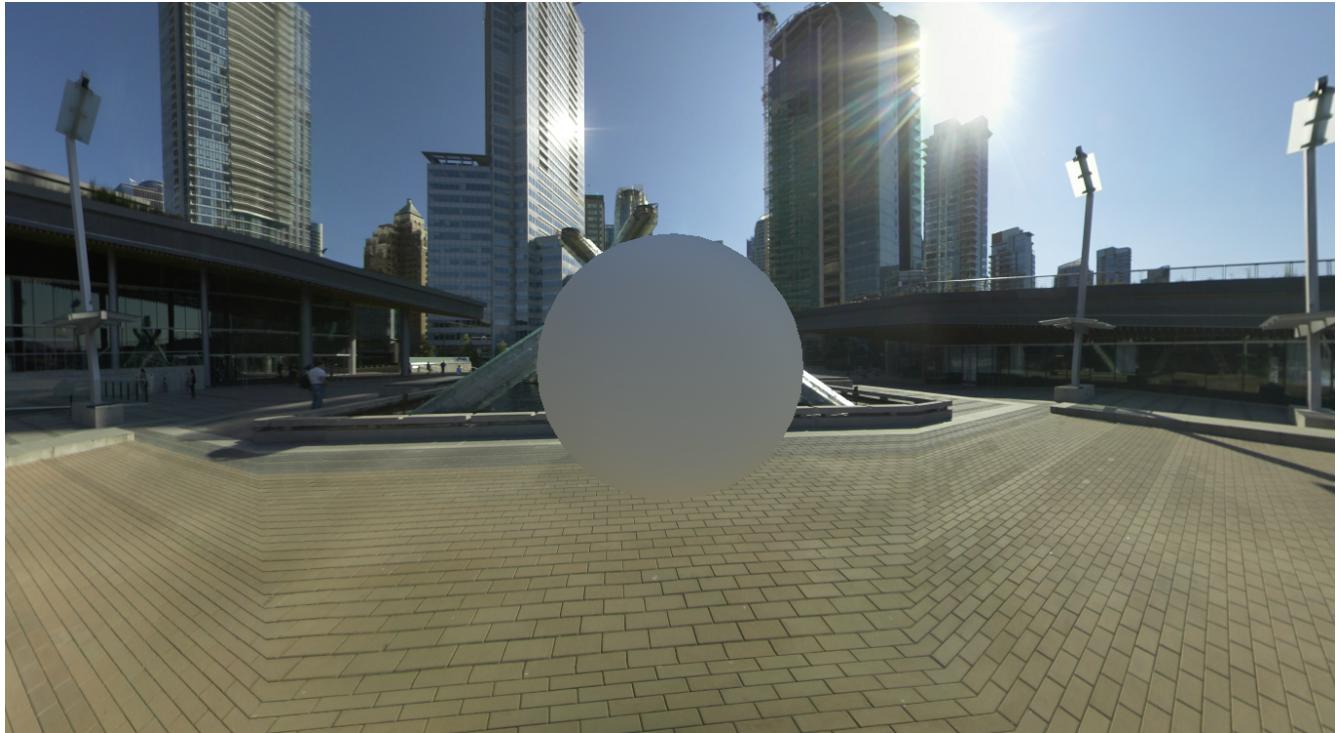
Cube map on cube as background  
Sphere with refraction and reflection

In order to map the texture to the cube, I mapped the textures using the position.



Irradiance map

In order to obtain this result, the textures were put in different buffers.



The method used to obtain this result is the generation of random vectors to sample the environment. First, a random vector is generated. In order to generate a random vector, a random number generator is used, which was provided on blackboard. Then the dot product of the random vector and the normal is checked. If the dot product is greater than 0, then it is sampled and then added to the colour. This is done for 10000 times in order to reduce the speckles. Then the colour is averaged to get the final colour.

Even though sampling 10000 times removed most of the speckles, some of the speckles are still visible. Also increasing the sample size to 10000 causes the program to run slow.