CS 457 Project #6
The Dragon Menagerie Project

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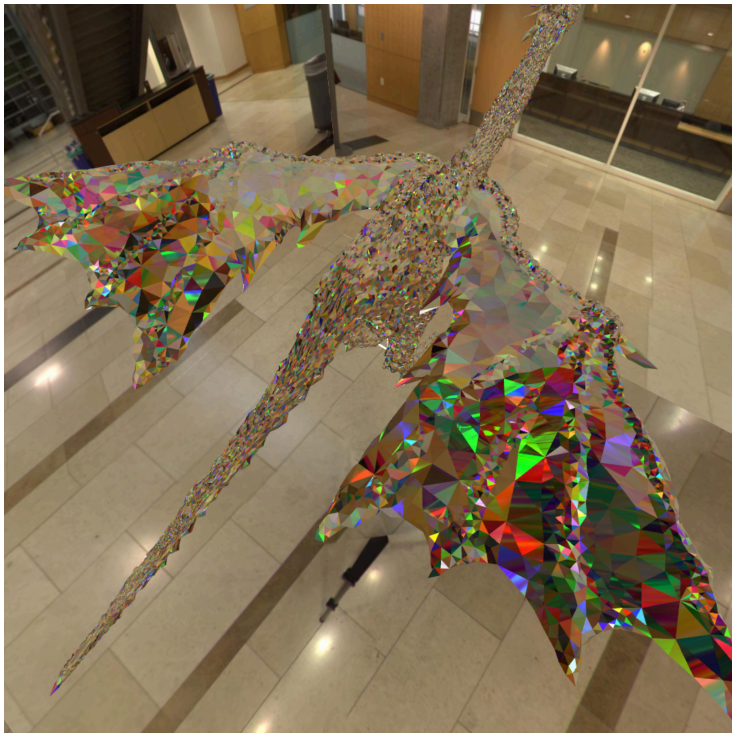

Video link

To create this display, I referenced this guide on how to implement a chromatic aberration shader and worked in this order:

pattern.vert

1. Set the vertex shader to output:
    a. vST - texture coordinates
    b. vN - normal vector
    c. vE - vector from point to eye
    d. vMC - model coordinates

proj6.glib

2. Implemented calls to texture.vert, texture.frag, and the Kelley Engineering Center cube map textures
3. Set parameters for the following variables so they appear as sliders in glman:
    a. uNoiseAmp
    b. uNoiseFreq
    c. uIorR - red's individual index of refraction
    d. uIorG - green's individual index of refraction
    e. uIorB - blue's individual index of refraction
4. Specified the dragon OBJ

pattern.frag

5. Brought in:
    a. glman variables as uniform floats
    b. Variables from the vertex shader
    c. Noise from the glman 3D noise texture
6. Normalized the surface normal and eye vectors
7. Sampled noise textures for bump-mapping as was done in Project #3
    a. Sampled noise textures to generate rotation angles
    b. Extracted and adjusted rotation angles for x-axis and y-axis
8. Rotated the normal vector using computed angles and normalized
9. Calculated the inverse of individual indices of refraction for R, G, and B using the glman sliders uIorR, uIorG, and uIorB
10. Calculated unique refraction vectors for R, G, and B using the index of refraction ratios calculated in step 9
11. Sampled the cube map using the unique refraction vectors for each color channel
12. Applied the refraction results to each color channel
13. Outputted the final color