CS 457 Project #1
Step- and Blended-edged Elliptical Dots

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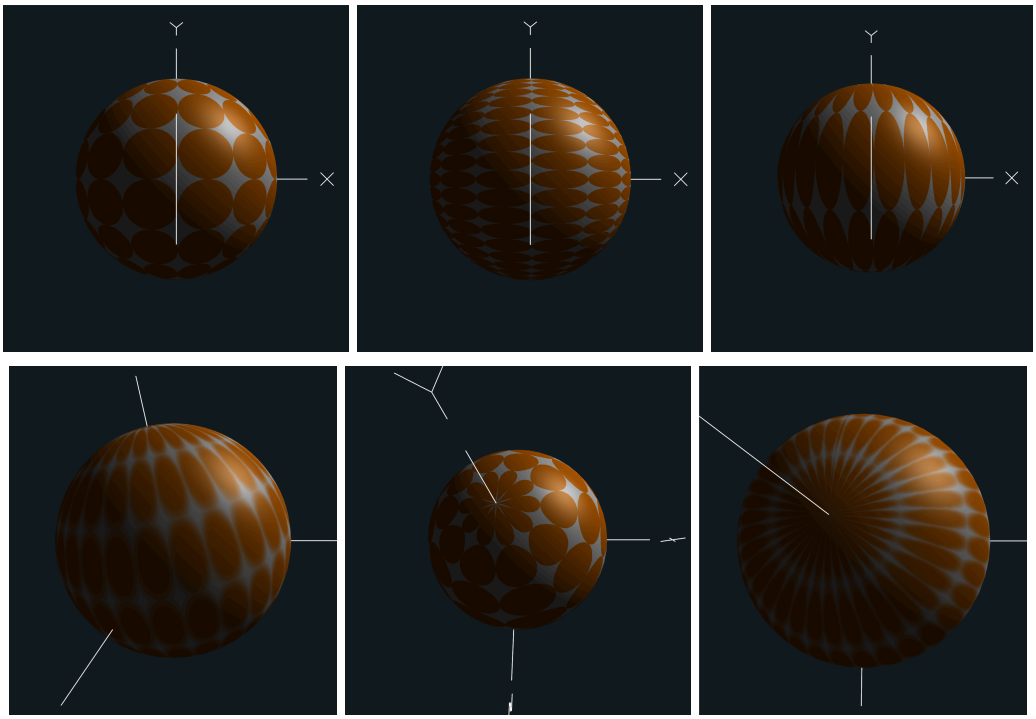

Video link

To create this display, I worked in this order:

pattern.frag

1) Defined variables for the ellipse equation
    a) a = s coordinate
    b) b = t coordinate
    c) Ar = horizontal radius of ellipse
    d) Br = vertical radius of ellipse
    e) uSc = s coordinate for center of ellipse
        i) Calculated using variable numins
    f) uTc = t coordinate for center of ellipse
        i) Calculated using variable numint
2) Defined a variable ellipseEquation to hold the ellipse equation, referencing:

$$\left(\frac{s-s_c}{A_r}\right)^2+\left(\frac{t-t_c}{B_r}\right)^2 \leq 1$$

Ellipse

(a - uSc) * (a - uSc) / (Ar * Ar) + (b - uTc) * (b - uTc) / (Br * Br)

3) Defined a variable t to create a smoothstep() blend between the ellipse and non-ellipse areas using the uTol parameter to determine the width between them
4) Used t in the mix function to blend the colors on the edge of the ellipse and set such to myColor

glman.exe

5) Downloaded glew32.dll and glut32.dll and put them in the same folder as the project files

proj1.glib

6) Referenced pattern.vert and pattern.frag
7) Set parameters for the following variables so they appear as sliders in GLman:
    a) uAd
    b) uBd
    c) uTol
    d) uKa
    e) uKd
    f) uKs
    g) uShininess