

1 Introduction

There is only one program in this homework set. As usual, zip the project directory into one zip file. Upload the zip file to the Homework #4 page of the MyClasses site for this class.

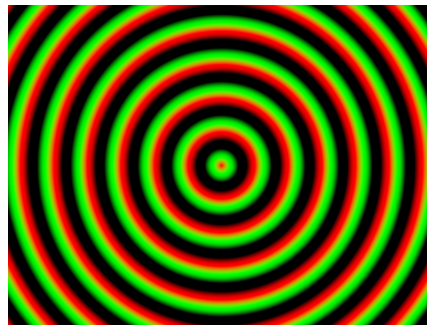
2 Exercise: Fragment Shader Play

This program is to get some experience with the GLSL shading language syntax and command library. The program is built on the StrangeShader example from the class. Make the following changes to the StrangeShader example.

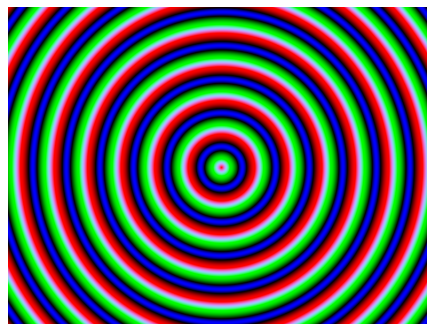
1. In the graphics engine,
 - (a) Remove the circle.
 - (b) When the screen is resized have the box resize itself so that it covers the entire screen. What this does is it produces a fragment for each pixel on the screen, so even though there is some geometry on the screen (two triangles) the coloring is essentially geometry free.
2. You will be leaving the vertex shader as the aspect ratio shader. In the fragment shader add in the following screen visuals. These should be lined to the UI and graphics engine via a uniform integer variable in the fragment shader.

Number 0 Selected: When the 0 key is hit the shader should produce a blank screen. This is also how the program will start.

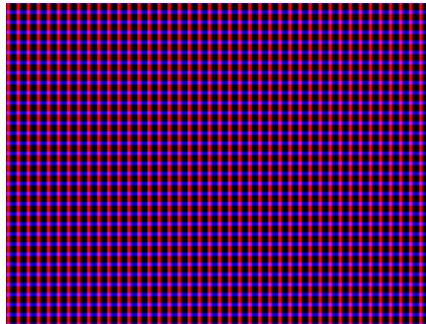
Number 1 Selected: When the 1 key is hit the shader should produce the following static image.



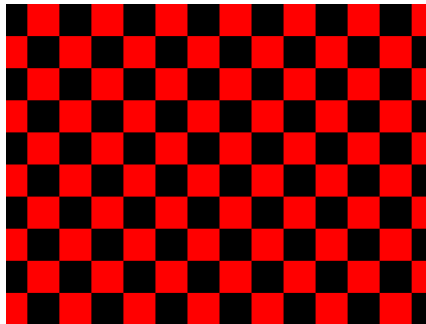
Number 2 Selected: When the 2 key is hit the shader should produce the following static image.



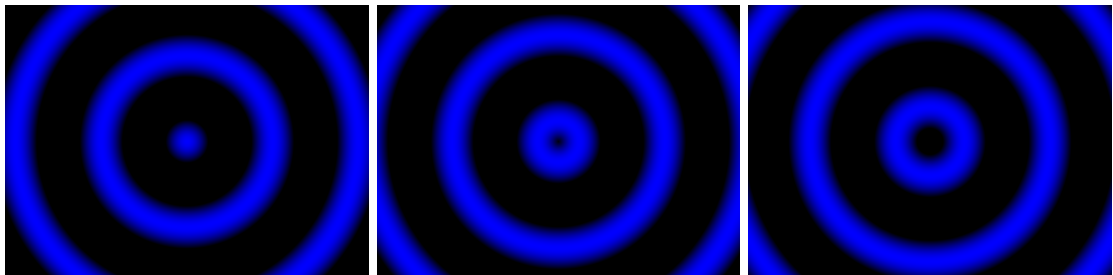
Number 3 Selected: When the 3 key is hit the shader should produce the following static image.



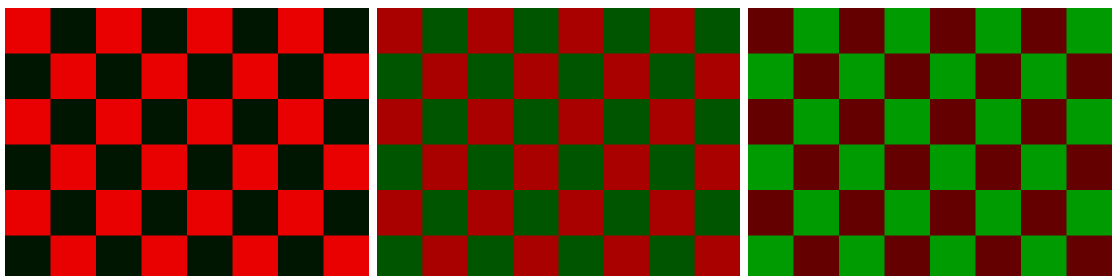
Number 4 Selected: When the 4 key is hit the shader should produce the following static image.



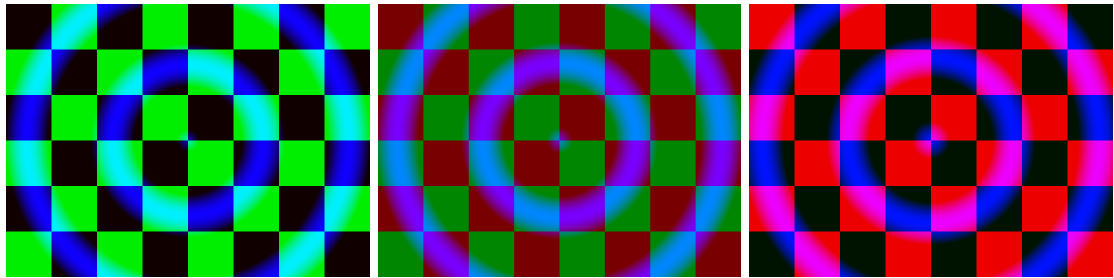
Number 5 Selected: When the 5 key is hit the shader should produce the following dynamic image. Blue circles growing larger from the center. For the animation, add in another uniform variable for the current time and have the CPU send the time to the graphics card on each frame.



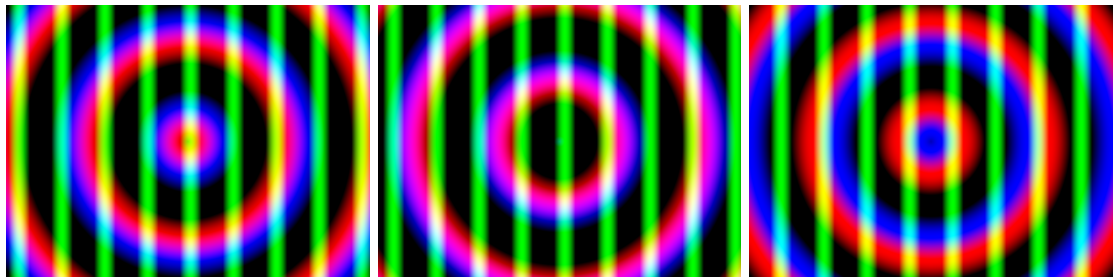
Number 6 Selected: When the 6 key is hit the shader should produce the following dynamic image. A checker board that the red squares fade in and out to black and the black squares fade in and out to green.



Number 7 Selected: When the 7 key is hit the shader should produce the following dynamic image. Blue circles growing larger from the center over a checker board that the red squares fade in and out to black and the black squares fade in and out to green.



Number 8 Selected: When the 8 key is hit the shader should produce the following dynamic image. Blue circles growing larger from the center. Red circles growing smaller from the outside. Green bars moving to the left.



Number 9 Selected: When the 9 key is hit the shader should produce the following dynamic image. Blue circles growing larger from the center. Red circles growing smaller from the outside. Green circles growing smaller from the outside, moving twice as fast as the red ones.

