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Assignment 3 Write Up

CS 5963: Virtual Reality

**Part 2.1**

The Depth of field code functions by passing a depth from camera parameter to the shader which the depth of field script holds. A blur is added by rendering the image to a smaller resolution and back up again and the blur is smoothed using a round blur average rather than a square one (the Bokeh radius). Finally, to keep the focal point and a certain radius around it in focus, the depth of the current pixel is Linearly Interpolated to determine if the image at that point should be the lower resolution, higher resolution, or an averaged resolution.

**Part 2.2**

The FFR effect is achieved very similarly to part 2.1 by bringing the image to a lower resolution and then back up. For determining which section should be rendered at which resolution, two min and max values for both the x and y axis are given to the shader. The shader then uses these boundaries to lerp the two resolutions based on the pixels current x or y coordinate.

**Part 2.2 Fixed Foveated Rendering++**

The different levels of FFR are achieved by bringing the image down to even lower resolutions, and making more passes for blending using the min and max x,y values. In effect, it is a slightly more built up version of FFR-Low. To simplify debugging, each level of FFR was split to its own shader so that each pass could be more easily managed.