Interactive Wave Ripple Shader

CS457 Winter 2019 Final project proposal - Jonathan Jones
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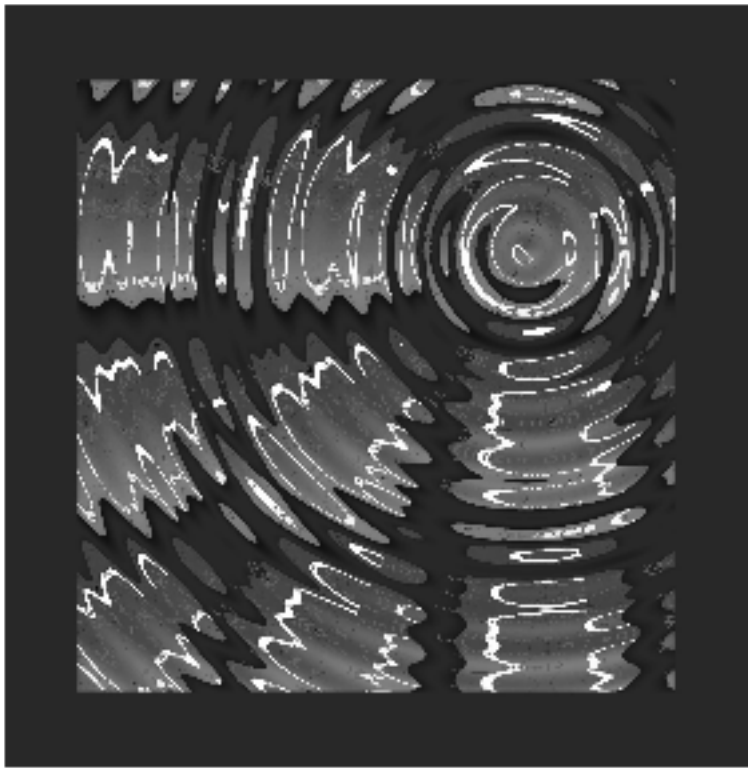

I propose a shader which generates realistically lit, animated and decaying ripples on the click of button. Through a few sliders, the user will be able to control the S&T coordinates from which the ripple will originate, the frequency, the amplitude and rate of exponential decay. The ripples will decay over time as they are generated and will eventually dissipate. A ripple will only appear when the user has clicked the “Generate ripple” button in the glman interface.

Up to five waves will be allowed at the same time on the surface. This will present some considerable challenge as multiple wave states need to be computed across the surface at the same time.

To maintain some realism, I will update the surface normals as they are deformed by the waves and apply either basic lighting or cube map reflection. The vertices themselves will also be displaced rather than just applying a bump map to the surface.