



Screen Space
Ambient
Occlusion
Through
Depth Blurring

Abstract:

Ambient occlusion is a method typically used in large film productions, to improve image quality dramatically while only modestly increasing the computation cost. For video games, AO is often too expensive to compute in realtime. Most AO solutions rely on an image space raytracing method, but this is quite slow, and does not work with GLSL coding. I propose a simple and probably not new method of creating SSAO in realtime, without raytracing and without a normal buffer.

Technique:

To create the occlusion, I sample the depth buffer in a few locations, in a grid around each pixel. The sampling adds the difference between the pixel and sample depth to the occlusion value. If this difference is greater than a certain cutoff, then the difference is replaced with the difference subtracted from the squared cutoff. Then, the difference is clamped. This eliminates haloing artefacts at long range. My method also inherently does not self-occlude, due to the fact that a flat surface's blurred z-buffer will be identical to the original.

Credits:

Matthew Wiebe, 2010.

Thanks to Mike Pan for providing inspiration with this technique.