Shader-Based Wireframe Drawing

In this paper, we first argue that drawing lines on polygons is harder than it may appear. We then propose two novel and robust techniques for a special case of this problem, namely wireframe drawing. Neither method suffers from the well-known artifacts associated with the standard two pass, offset based techniques for wireframe drawing. Both methods draw prefilled lines and produce high-quality antialiased results without super-sampling. The first method is a single pass technique well suited for convex N-gons for small N (in particular quadrilaterals or triangles). It is demonstrated that this method is more efficient than the standard techniques and ideally suited for implementation using geometry shaders. The second method is completely general and suited for arbitrary N-gons which need not be convex. Lastly, it is described how our methods can easily be extended to support various line styles.

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Contributors: Bærentzen, J. A., Nielsen, S. L., Gjøl, M., Larsen, B. D.
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