



Tessellation-Independent Smooth Shadow Boundaries

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Abstract

We propose an efficient and light-weight solution for rendering smooth shadow boundaries that do not reveal the tessellation of the shadow-casting geometry. Our algorithm reconstructs the smooth contours of the underlying mesh and then extrudes shadow volumes from the smooth silhouettes to render the shadows. For this purpose we propose an improved silhouette reconstruction using the vertex normals of the underlying smooth mesh. Then our method subdivides the silhouette loops until the contours are sufficiently smooth and project to smooth shadow boundaries. This approach decouples the shadow smoothness from the tessellation of the geometry and can be used to maintain equally high shadow quality for multiple LOD levels. It causes only a minimal change to the fill rate, which is the well-known bottleneck of shadow volumes, and hence has only small overhead.

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