

Real-Time Path-Based Surface Detail

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We present a GPU algorithm to render path-based 3D surface detail in real-time. Our method models these features using a vector representation that is efficiently stored in two textures. First texture is used to specify the position of the features, while the second texture contains their paths, profiles and material information. A fragment shader is then proposed to evaluate this data on the GPU by performing an accurate and fast rendering of the details, including visibility computations and antialiasing. Some of our main contributions include a CSG approach to efficiently deal with intersections and similar cases,

and an efficient antialiasing method for the GPU. This technique allows application of path-based features such as grooves and similar details just like traditional textures, thus can be used onto general surfaces.