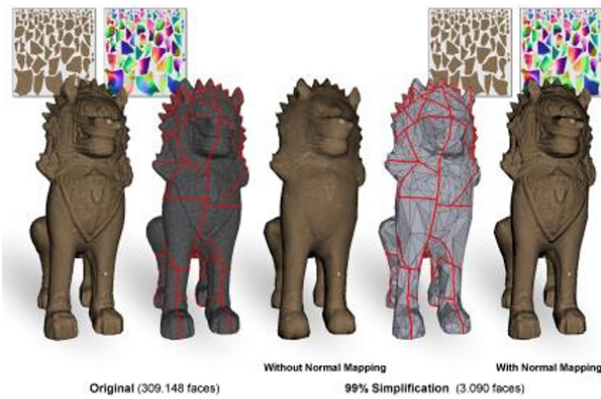


Accurate Simplification of Multi-Chart Textured Models

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Scanning and acquisition methods produce highly detailed surface meshes that need multi-chart parameterizations to reduce stretching and distortion. From these complex shape surfaces, high-quality approximations are automatically generated by using surface simplification techniques. Multi-chart textures hinder the quality of the simplification of these techniques for two reasons: either the chart boundaries cannot be simplified leading to a lack of geometric fidelity; or texture distortions and artefacts appear near the simplified boundaries. In this paper, we present an edge-collapse based simplification method that

provides an accurate, low-resolution approximation from a multi-chart textured model. For each collapse, the model is reparameterized by local bijective mappings to avoid texture distortions and chart boundary artefacts on the simplified mesh due to the geometry changes. To better apply the appearance attributes and to guarantee geometric fidelity, we drive the simplification process with the quadric error metrics weighted by a local area distortion measure.