

## Texture Mapping on Arbitrary 3D Surfaces

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### Abstract

Texture mapping is a common technique in computer graphics to render realistic images. Our goal is to achieve a distortion-less texture mapping on arbitrary 3D surfaces. To texture 3D models, we propose a scheme to flatten 3D surfaces into a 2D parametric domain. Our method does not require the two-dimensional boundary of flattened surfaces to be stationary. It consists of three steps: 1) we find high distortion areas in a 2D parametric domain and find a cutting path over these areas, 2) we add virtual points to adaptively find the better boundary of parametric domain instead of a predefined one and 3) finally, we perform an well-known smoothing technique for better texture mapping. The proposed scheme can be efficiently solved by a linear system and it yields an interactive performance. Finally, several preliminary results are demonstrated to verify the proposed scheme.