

3D Texture Paint of Point Models



José Ricardo Mello Viana, Claudio Esperança, Ricardo Marroquim
UFRJ - Universidade Federal do Rio de Janeiro
Programa de Engenharia de Sistemas e Computação



Abstract

We propose a technique for painting 3D models based on a rendered image of the model and a 2D map of normal vectors.

The technique

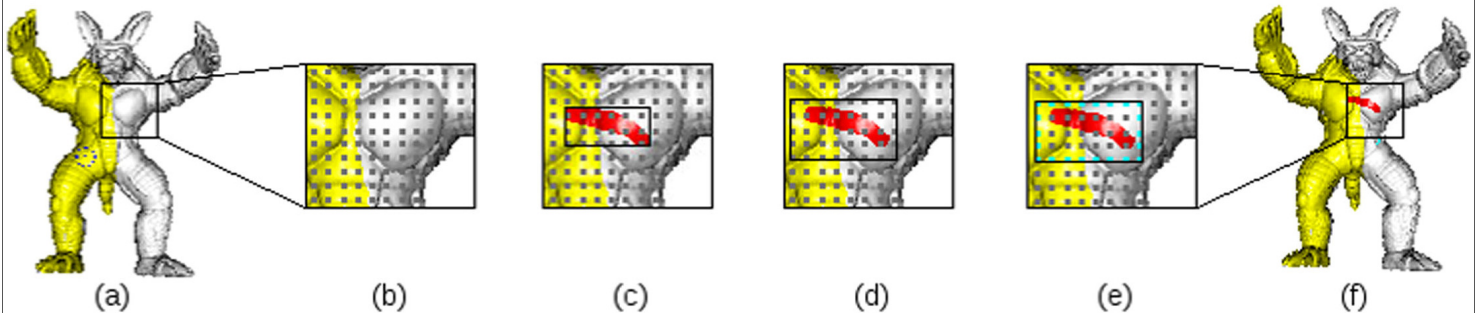
Texture generation and coordinate mapping are produced on-the-fly. This makes it possible to paint in broad strokes or in small detail. The minimalistic requirements of this technique make it suitable for painting both regular meshes (polygonal meshes) and point-based models.

Normal Buffer



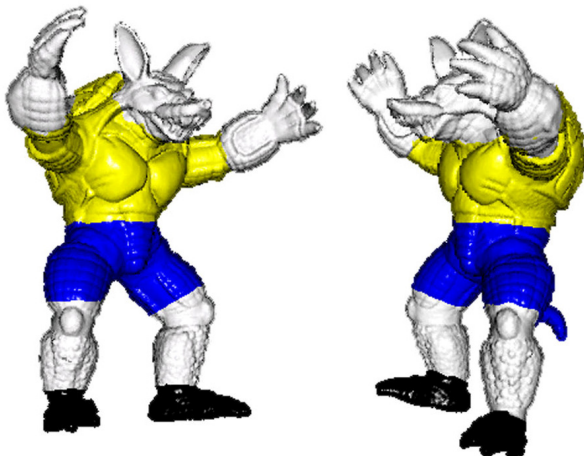
Used to compute the 3D cursor projection and illumination function and to distinguish background pixels from pixels covered by the model.

Painting new strokes



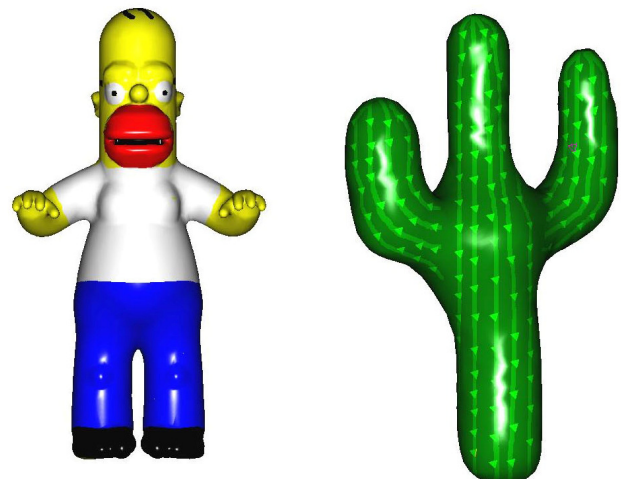
Drawing texture passes: (a) input model for paint stroke, (b) points of affected area, (c) bounding box of new stroke, (d) expanded bounding box containing all points related with the stroke, (e) critical points, in green, possibly associated with more than one texture, (f) model with new stroke.

Painted Point Model



Point Model painted with our system

Easily applied on polygonal meshes



Polygonal meshes painted with our system