

图形图像处理

基于纹理合成的水墨山水画自动绘制

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摘要：通过分析中国山水画的一般创作技法，提出了基于纹理合成的水墨山水画绘制方法。将一幅图像作为控制图像，用于控制要绘制的区域轮廓和明暗色调；采集画家的手稿作为样本图像，通过纹理合成绘制出国画绘画中的各种皴、染笔触；在传统的纹理合成方法上，提出了一种目标控制的多级纹理合成算法，该算法能利用控制图像有效地控制纹理合成的结果。从而可以将一幅数字照片或简单的手绘图自动地转换成各种中国水墨画效果的图像。仿真结果证明了该方法对于各种山水画的绘制具有良好的效果。

关键词：水墨山水画 纹理合成 非真实感绘制 自动绘制 Chinese landscape painting texture synthesis non-photorealistic rendering automatic rendering

Automatic rendering for Chinese landscape painting using texture synthesis

LI Da-Jin

Abstract: Based on the analysis of Chinese landscape painting art skills, the author proposed a novel rendering method based on texture synthesis. At first, a control picture should be created to indicate the shading area and the area silhouette should be painted in. Then, some textures images painted by Chinese artist using desired representation skills were collected; these texture images would be used as samples in texture synthesis process. Finally, texture syntheses were implemented, and then a picture with the strokes in the texture samples would appear in your vision. In order to preserve the stroke styles and mountain figure in the control picture, the author presented an object-controlled multi-level texture synthesis algorithm that could control the synthesis result efficiently using control picture. Using this method, a photo or a simple script could be converted to a Chinese painting style picture automatically, and the experimental results show it works well.

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