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Journal	Applied Mechanics and Materials (Volumes 121 - 126)
Volume	Frontiers of Manufacturing and Design Science II
Edited by	Dongye Sun, Wen-Pei Sung and Ran Chen
Pages	976-980
DOI	10.4028/www.scientific.net/AMM.121-126.976
Citation	Zhi Jing Yu et al., 2011, Applied Mechanics and Materials, 121-126, 976
Online since	October, 2011
Authors	Zhi Jing Yu , Xiao Pan , Wei Tian
Keywords	Constraints , Height , Randomnoise , Texture Mapping , Topography
Abstract	The terrain in the virtual realistic environment will determine the scene generation level of realism. It has been a hot topic in computer graphics. In this paper, the analysis of the current generation of multi-terrain texture mapping method is carried out firstly. At the same time, the advantage and disadvantage of the method is pointed out. A new means is put forward. It is that while the gray images are proposed to provide terrain height field constraints, the image intensity information generated by the random noise is used as constraints to determine the random distribution information on different texture of terrain. At last, a realistic terrain using OpenGL Library Standard in Win32 console application is developed which is close to the natural environment with a high application value.
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First page example

Multi-texture mapping on terrain by the constraints based on random noise

Zhijing Yu^{1,a}, Xiao Pan^{1,b}, Wei Tian^{1,c}

¹Civil Aviation University Of China, Tian Jin 300300 China

^a hit_yu@126.com, ^b panxiao0620541@163.com, ^c tianwei@126.com

Keywords: Topography, Height, Randomnoise, Constraints, Texture mapping.

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Introduction

With the development of virtual reality technology, three-dimensional terrain generation at home and abroad has also become the focus of attention in computer graphics field, which is widely used in military simulation, GIS systems, VR systems, and the game scene. However, the realism of the terrain will determine the degree of realism of the system and visual effects.

In the terrain generation process, its ups and downs of three-dimensional information distribution are not only determined by the elevation data (DEM), the distribution of texture mapping rendering also plays a big role and determines the topography of realism directly. This paper presents a means which is that with the grayscale image to provide terrain height field constraints, the random distribution of the image intensity information generated by the random noise as constraints of different texture mapping information is used to develop a realistic terrain scene.

The Terrain Texture Mapping Research

The current multi-texture mapping techniques is commonly used to improve the realism, which is the integration of multiple texture. Multiple texture mapping is to operate the texture in order to make multiple textures applied to the same polygon. The idea is to draw the graphic in the middle of each step and save the results into a texture. And then layers of texture are mapped to the collection texture. This technique is known as multi-texture rendering techniques (Figure 1 and Figure 2).

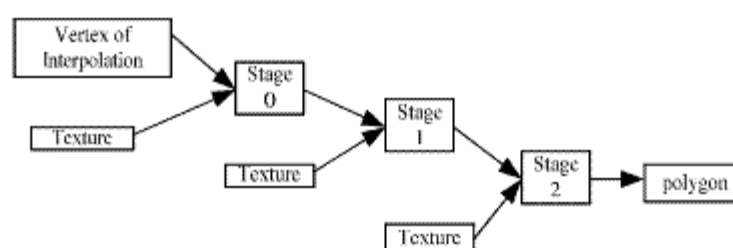


Figure 1 Multi-texture mapping