Thesis Title	Realistic Rendering of Thatched Grass Based Rooves
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ABSTRACT

The physical based modeling and rendering of grass is an interesting topic in computer graphics. They have been used in many applications such as computer games, simulation and animation. Particularly, thatched grass based rooves made from local grass is a wisdom of Asian culture and supports many applications. However, there has been little research about thatched grass based rooves modeling and rendering at present. Also, the normal method is not based on physical characteristics or appearances.

In this thesis, a skeleton-based model was applied to the characteristics of thatched grass. This method created the natural grass look based on grass's physical appearance. A BRDF (Bidirectional Reflectance Distribution Function) was applied on the front side, and a BSSRDF (Bidirectional Scattering Surface Distribution Function) was applied on the back side. Using this method, proved that thatched grass based rooves are based on natural characteristics.

These results showed that this method is more accurate than the previous method basing on physical characteristics and appearance. A questionnaire was used to evaluate the methods with a score from 1-10. The evaluation compared the photographs, the previous methods and the proposed methods. According to the results of the questionnaires, the proposed method appeared to be more realistic than previous methods.

Keywords: BRDF/BSSRDF/Shader Model/Skeleton Based Modeling/Grass/Natural Rendering