

基于参数曲线的虚拟植物形态控制方法 Control Method of Virtual Plant Morphology Using Parameter Curve

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关键词: 植物形态 虚拟植物 L系统 参数曲线

摘要: 提出一种利用L系统建立植物拓扑结构原型, 利用规则曲线、三次样条曲线、B样条曲线对植物参数进行控制的虚拟植物形态控制方法, 以达到直观虚拟植物控制形态的目的。重点分析了参数曲线与植物参数的关系, 建立了植物长度类参数、角度类参数、颜色类参数与参数曲线的关联模型。试验表明, 该方法简单直观, 生成的图形真实感强, 适用于虚拟植物的模拟研究。 A simple control method for virtual plant morphology was presented. The topology structure of plant was obtained from L-system. In L-system, the value of plant parameters was controlled by regular curve, cubic spline curve and B-spline curve. The plant morphology was varied by the modified parameters curve shape, the hypotaxis was determined by using correlation model with both plant parameters and curves. The results showed that the length parameters, angle, and color could be represented by B-spline curve, cubic spline curve and regular curve respectively, and the plant morphology was similar with curve shapes. The method is helpful in future plant modeling.

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