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一种改进AABB包围盒的碰撞检测算法

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摘要 详细分析比较基于包围盒的碰撞检测算法中的轴向包围盒法、方向包围盒法、离散方向多面体法的检测原理和检测效率, 并改进了轴向包围盒碰撞检测算法, 提出利用简化包围盒边缘节点实现碰撞检测的新设想, 其可行性已被初步试验证实。不仅显著提高了碰撞检测的速度, 并且可以便捷地得到更为详细的碰撞检测信息, 满足了进一步进行碰撞响应处理的需要。使飞行模拟机的视景系统能够实时、准确地检测出虚拟物体间的碰撞。

关键词 碰撞检测 包围盒 飞行模拟机 算法

分类号

Improvement AABB surrounds examination calculate way of collision box

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Abstract

The text discussed and compared the principle and effectiveness of Axis-Aligned Bounding Boxes（AABB） method,Oriented Bounding Box（OBB） method and Discrete Orientation Polyhedral（K-DOP） method in detail,and improved AABB method.An idea of utilizing simplifying surrounding edge node bounding box to realize colliding was proposed for the first time.And the feasibility was demonstrated by some preliminary tests.Not only has improved the speed measured of collision detection,but also can get more detailed collision and measure information conveniently,met the need of colliding and responding dealing.This truly made visual system of flight simulator can measure collision of fictitious object in real-time.

Key words collision detection bounding box flight simulator algorithm

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