

GIS技术

ROAM算法的改进与实现

摘要:

地形模型简化和多分辨率表示是当前地形可视化研究的热点领域,国内外已有大量相关研究。实时优化自适应网格算法以其简单性和可扩展性在三维地形可视化领域中被广泛使用。本文在ROAM算法的基础上,对其实现方法进行了局部的改进。利用隐式二叉树数据结构代替了二叉树的链表存储结构,并且借鉴了McNally提出的分裂算法,对该算法做出了3点修改,然后提出了强制合并算法取代传统的合并算法,最后引入地形分块策略对大规模地形进行实时渲染,取得了很好的显示效果。

关键词: 地形渲染 隐式二叉树 强制合并

Improved ROAM Algorithm and Its Implementation

Abstract:

Terrain model simplification and multi resolution representation are the hot area of research on terrain visualization, there are a large number of studies at home and abroad. The real time optimization adaptive mesh algorithm for its simplicity and extensibility were widely used in the three dimensional visualization of the terrain. In this article we try to achieve partial improvements on the basis of ROAM algorithm. We use implicit binary tree data structure in place of the list storage structure of the tree, learn the algorithm put forwarded by the McNally and make three changes of it, and propose a forced merge algorithm to replace the traditional method. Finally, through the introduction of terrain block strategy of large scale terrain, we render terrain on real time and obtain good results.

Keywords: Terrain Rendering implicit binary tree; forced merge

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