

Large terrain visualization in real-time

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Abstract

Terrain visualization is used in a variety of computer applications such as GIS, computer games, simulations, etc. To realistically present a terrain we may require a lot of memory and processing power. We will present a system for efficient visualization of large terrains in real-time. To achieve the necessary performance we utilize the graphic hardware. However, too large terrains cannot be rendered in real-time without appropriate adjustments. We use a quadtree data structure to divide large terrains, and then employ algorithms for level of detail management and visibility tests (Frustum Culling). We reduce the level of detail of the terrain where it is not necessary and keep the detail where it is needed (near the viewer). In the presentation we will explain how these methods contribute to efficient rendering of large terrains.