



Diplomanden- und Doktorandenseminar
des Instituts für Informatik

Kinetic Bounding Volume Hierarchies for Deformable Objects

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We present novel algorithms for updating bounding volume hierarchies of objects undergoing arbitrary deformations. Therefore, we introduce two new data structures, the kinetic AABB tree and the kinetic BoxTree. The event-based approach of the kinetic data structures framework enables us to show that our algorithms are optimal in the number of updates. Moreover, we show a lower bound for the total number of BV updates, which is independent of the number of frames. We used our kinetic bounding volume hierarchies for collision detection and performed a comparison with the classical bottom-up update method. The results show that our algorithms perform up to ten times faster in practically relevant scenarios.

Donnerstag den 8. Juni 2006
15.00 Uhr in Raum 106