

Thanet Suphan 2007: Multidimensional Binary Clustering Tree for 3D Surface Simplification. Master of Science (Computer Science), Major Field: Computer Science, Department of Computer Science. Thesis Advisor: Mr. Chakrit Watcharopas, Ph.D. 63 pages.

This research objective is to presents the surface simplification algorithm, Multidimensional Binary Clustering Tree (MBC Tree) that can quickly simplify surface and is still comparable to other algorithms such as Divisive Hierarchical Clustering (DHC), Incremental Clustering (INC), and K-Mean Clustering (KMC).

The data sets in this research are 3D points sampled from real surface using a modern 3D scanner device. The data sets are then simplified with surface simplification process to compare effectiveness among simplification algorithms. Thereafter, we compare surface reconstruction time and surface quality between the resulting surfaces and original one.

The results in this research indicate that MBC Tree outperforms other algorithms shown in the research on simplification process and uses less amount of simplification time. Whereas, the surface reconstruction time taken by MBC Tree, DHC and KMC are still comparable. The results also show that spends the most amount time on both simplification and reconstruction.

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Student's signature

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Thesis Advisor's signature

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