

Hierarchical Triangulations of Clustered Data

Jiří Skála

Abstract:

Clustering could be an efficient method to reduce extensively large data to a manageable size. Our clustering approach allows building a hierarchical structure where it is possible to view various parts of the model in different resolution. We are currently working on a dynamic Delaunay triangulation where points are inserted and removed at run-time as clusters are expanded or collapsed.

In my upcoming talk I will quickly recapitulate the clustering algorithm with its modification for large data. I will then present our current work on the dynamic triangulation applied on viewing large geometric models where the user can select different resolution in various regions.

Except this mainstream I will also talk about several interesting discursions. For some applications, e.g. the terrain modelling, it could be useful to introduce a space distortion so that the distance in some particular direction is considered more significant than in the other directions. This led us to the idea of using anisotropic metrics, both for the clustering and for the triangulation. Other particular tasks are being solved by students. I will present a binary clustering method developed by J. Hyka for use in space partitioning for ray-tracing.