

Oberseminar Theoretische Informatik

Wintersemester 2008/2009

Waqar Saleem

Digital Shape Analysis

Monday, November 24 at 2pm (c.t.)
in room 3319 (Ernst-Abbe-Platz 2, floor 3).

This talk will not feature the vertex cover problem. I will try to make up for that by providing some nice visuals. More specifically, I will give an overview of my PhD work at the MPI Informatik in Saarbruecken before coming to Jena.

Geometric modeling deals with the representation of real (and imaginary) objects in a form suited for further computation, e.g. a triangle mesh. The steps involved form the so-called digital shape pipeline.

Given a point cloud representation of an object, as is typically obtained by scanning the object, we present a method to obtain a triangle mesh representation of the object's shape. The digital shape thus obtained can now be analyzed to obtain its "best" viewing parameters and hence its "best views". These views are static images. We present methods to obtain such views of a shape, and to extend these views into a more dynamic representation.

We also present methods that deal with collections of shapes. The first method automatically analyzes the complexity of a given shape, thus allowing a ranking of shapes in the collection according to their complexities. The second retrieves stored shapes that are similar to a query shape.

Finally, we present some ideas on how such a collection can be maintained, organized and disseminated.

Homepage:

<http://theinfl.informatik.uni-jena.de/teaching/ws0809/oberseminar-ws0809>