

i3DSAS : Integrated 3D Shape Analysis and Synthesis

*Leif Kobbelt
Computer Graphics & Multimedia
CS Department
RWTH Aachen University*

Abstract

The use of digital models for 3D objects and scenes has become a standard feature in a wide spectrum of application domains ranging from engineering and architecture to medical applications and multimedia. The major enabling factors for this trend are that current 3D reconstruction techniques such as laser scanning or multi-view stereo have matured to a degree that fairly complex 3D objects and environments can now be digitized with acceptable effort and at the same time today's commodity graphics hardware is getting powerful enough to handle such massive 3D datasets in real-time. However, a major unsolved problem in 3D reconstruction and modeling is still the relatively low quality of automatically generated 3D datasets on the one hand and the considerable manual effort that it takes to generate high quality CAD-models on the other hand. In this project, we want to combine the best of these two approaches by supporting the interactive modeling process ("shape synthesis") with information extracted from automatically captured 3D data ("shape analysis"). We aim at the development of fundamental techniques for the next generation of interactive 3D modeling systems that, for a given modeling task, extract shape information from captured 3D data and use this information to guide the interactive design process.