Informatik-Oberseminar

Fachgruppe Informatik

Lehrstuhl für Informatik 8

RHEINISCH-WESTFÄLISCHE TECHNISCHE HOCHSCHULE AACHEN

EINLADUNG

Zeit: Dienstag, 23. Dezember 2008, 11:00 Uhr

Ort: Raum 6317, E2, 3. Etage, Ahornstr. 55

Referent: Dipl. - Inform. Alexander Hornung
Lehrstuhl für Informatik 8

Titel: Shape Representations for Image-based Applications

Abstract:

Image- and video-based methods for photo-realistic image synthesis or surface reconstruction have received a considerable amount of attention in recent computer vision and graphics research. In our work we have investigated three representative problems of this spectrum of techniques: character reconstruction and animation as an example of image and video editing, a method for accurate 3D model reconstruction, and a technique for interactive free viewpoint rendering. This presentation will focus on the first two techniques.

In the first part of the presentation a new approach for creating animated characters from images and captured human motion data will be presented. The challenge addressed here is the development of a single representation that is able to cover a variety of character types and inputs. Based on a generic character shape template we propose new techniques for the problems of camera estimation, shape deformation and tracking, and character reconstruction. The results are complex animations from diverse input sources such as single images or uncalibrated video of moving subjects.

The second part will concentrate on accurate 3D object reconstruction. A new solution to the problems of multi-view stereo and point cloud reconstruction is presented which is able to compute 3D surface models at a high accuracy while at the same time being robust to degeneracies in the input data. This is achieved by a new volumetric approach for extracting the object surface from a surface confidence map using globally optimal graph cuts. Due to the use of efficient hierarchical and GPU-based techniques our approach achieves a high computational performance and allows for 3D model reconstructions of considerable quality.

Es laden ein: Die Dozenten der Informatik