Institut für Geometrie

Vortrag

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Seminarraum 2 des Instituts für Geometrie

Online triangulation of laser-scan data

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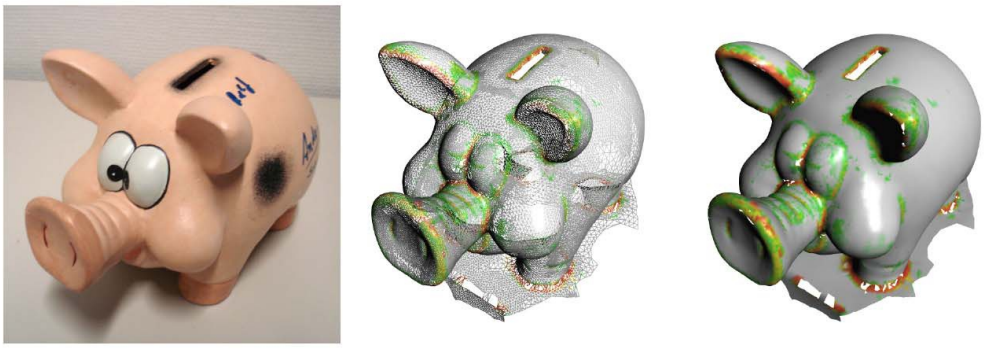
Hand-held laser scanners are used massively in industry for reverse engineering and quality measurements. In this process, it is difficult for the human operator to cover the scanned object completely and uniformly. Therefore, an interactive triangulation of the scanned surface points can assist the human operator in this task.

Our method computes a triangulation of the point stream generated by the laser scanner online, i.e., the data points are added to the triangulation as they are received from the scanner. Multiple scanned areas and areas with a higher point density result in a finer mesh and a higher accuracy. On the other hand, the vertex density adapts to the estimated surface curvature. To assist the human operator the resulting triangulation is rendered with a visualization of its faithfulness. Additionally, our triangulation method allows for a level-of-detail representation to reduce the mesh complexity for fast rendering on low-cost graphics hardware.



(this is joint work with Klaus Denker and Burkhard Lehner)

J. Wallner