

FREIE UNIVERSITÄT BERLIN Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

DISPUTATION

Dienstag, 17. Dezember 2013, 10.15 Uhr

Ort: Arnimallee 6, Raum 108/109, 14195 Berlin

Disputation über die Doktorarbeit von

Herrn Felix Kälberer

**Thema der Dissertation:
Low Distortion Surface Parameterization**

**Titel der Disputation:
Compression of Adaptive Multiresolution Meshes**

Die Arbeit wurde unter der Betreuung von **Prof. Dr. K. Polthier** durchgeführt.

Abstract:

Adaptive multiresolution meshes provide an efficient and structured representation of geometric objects. These meshes allow a local adaptation of the mesh resolution at vital parts of the object, and are widely used in simulation and modelling applications. We propose a lossless compression scheme for such data sets [1] that exploits the hierarchical relationships inherent to the mesh representation. We detect redundancies in common representations and store bits only where ambiguity is left. These compact codes are then further compressed using context-based arithmetic coding.

Next to the hierarchical structure itself, data sets usually have real-valued data attached to the vertices, such as their location in space or simulation data. We present advances in compression of such data, based on wavelets, zerotrees, and context-based coding.

[1] Christoph von Tycowicz, Felix Kälberer, and Konrad Polthier, "Context-Based Coding of Adaptive Multiresolution Meshes." Computer Graphics Forum. Vol. 30. No. 8. Blackwell Publishing Ltd, 2011.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. K. Polthier