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Einladung zum Vortrag von

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FreeLence – Efficient compression of large geometry meshes

Zeit: Dienstag, 11.9.2007, 9:30 Uhr
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Abstract. Compression of 3D meshes in geometry processing is a key algorithm of similar importance such as JPEG and wavelet compression in 2D image processing, and MP3 compression of 1D audio files.

We introduce FreeLence, a novel and simple single-rate compression coder for triangle manifold meshes. FreeLence uses *free valences* and exploits geometric information for connectivity encoding. Furthermore, we introduce a novel linear prediction scheme for geometry compression of 3D meshes. Together, these approaches yield a significant entropy reduction for mesh encoding with an average of 30% over leading single-rate region-growing coders, both for connectivity and geometry.

The talk starts with a discussion on redundancy of common 3D data formats and on the entropy of polyhedral meshes. Using the notion of discrete curvature we unveal the principal concepts of the connectivity coder, and then discuss effecient prediction strategies.

[1] Felix Kälberer, Konrad Polthier, Ulrich Reitebuch and Max Wardetzky. *FreeLence - Coding with free valences* Computer Graphics Forum 24 (3), 2005, 469-478.