HIGH RATE COMPRESSION OF 3D MESHES USING A SUBDIVISION SCHEME (ThuAmOR6)

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Abstract :

In this paper we present a new framework, based on subdivision surface approximation for efficient compression and coding of 3D models represented by polygonal meshes. Our algorithm fits a piecewise smooth subdivision surface to the input 3D mesh, aiming at getting close to the optimality in terms of control points number and connectivity of the subdivision control polyhedron. Our method is particularly suited for meshes issued from mechanical or CAD parts; indeed in these cases the research of the optimality is quite relevant. The found control polyhedron is much more compact than the original mesh and visually represents the same shape after several subdivision steps. This control polyhedron is then encoded specifically to give the final compressed stream. We obtain very promising results in terms of compression.

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