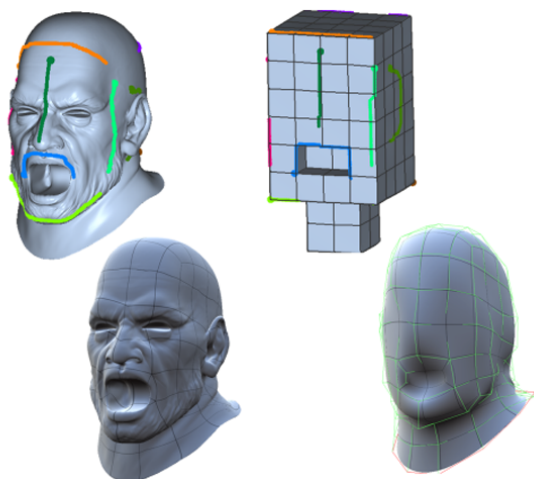


Editable Polycube Map for GPU-based Subdivision Surfaces

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In this paper we propose an editable polycube mapping method that, given an arbitrary high-resolution polygonal mesh and a simple polycube representation plus optional sketched features indicating relevant correspondences between the two, provides a uniform, regular and artist-controllable quads-only mesh with a parameterized subdivision scheme. The method introduces a global parameterization, based on a divide and conquer strategy, which allows to create polycube-maps with a much smaller number of patches, and gives the user much more control over the quality of the induced subdivision surface. All this makes it a practical

method for real-time rendering on modern hardware (e.g. OGL 4.1 and D3D11 tessellation hardware). By sketching these correspondence features, processing large-scale models with complex geometry and topology is now feasible. This is crucial for obtaining watertight displaced Catmull-Clark subdivision surfaces and high-quality texturing on real-time applications.