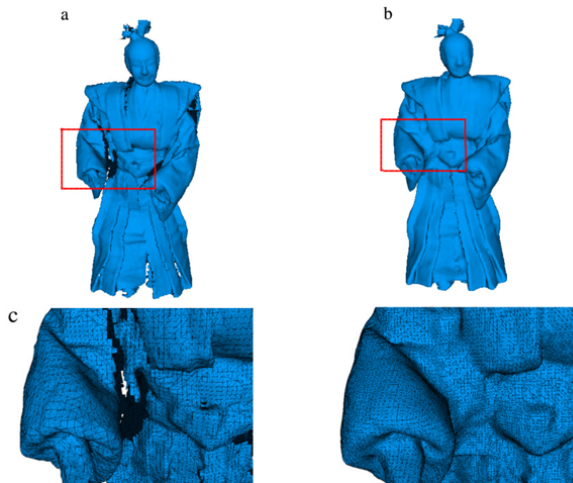


Mesh repair with user-friendly topology control

Hetroy, Frank; Rey, Stephanie; Andujar, Carlos; Brunet, Pere; Vinacua, Alvar



Limitations of current 3D acquisition technology often lead to polygonal meshes exhibiting a number of geometrical and topological defects which prevent them from widespread use. In this paper we present a new method for model repair which takes as input an arbitrary polygonal mesh and outputs a valid 2-manifold triangle mesh. Unlike previous work, our method allows users to quickly identify areas with potential topological errors and to choose how to fix them in a user-friendly manner. Key steps of our

algorithm include the conversion of the input model into a set of voxels, the use of morphological operators to allow the user to modify the topology of the discrete model, and the conversion of the corrected voxel set back into a 2-manifold triangle mesh. Our experiments demonstrate that the proposed algorithm is suitable for repairing meshes of a large class of shapes.