DEFOXEL: A NEW TOOL FOR VIRTUAL AESTHETIC SHAPING

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Abstract:
Based on the theory of solid mechanics, a group of “defoxels” have been defined and used to create three dimensional virtual shapes. A defoxel can be viewed as a force (or a source) which is capable to deform objects or meshes accordingly in a nature way. The defoxel acts as an abstract notation for distortion in space and a collection of defoxels are capable of creating complex deformation patterns, presenting rich variation in terms of curvature and distortion of shapes. The beauty of using this notation is the capability of generating a collection of shaping effects instantly with the same setting of defoxels when feeding different shapes to deform. Furthermore, we have implemented an Autodesk|Maya plug-in to assist artists to create art pieces with defoxels interactively, leading to the desired demonstrations. With a few examples, the paper envisages the potential of defoxels as a shaping tool to reflect tensions and deformations in space.

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