

Aim of this bachelor thesis is to design and implement algorithm, which deforms 3D space according to the polygonal model. We focus on algorithm, where we calculate deformation as linear combination of vertices of deformed polygonal mesh. Coefficients of this linear combination are called generalized barycentric coordinated. In preceding literature are generalized barycentric coordinated defined only for triangular meshes, we propose further generalization to more objects such as polygonal meshes or parametric surfaces. In two dimensions it is possible to use complex numbers and obtain a bigger class of deformations, such as conformal mappings. We propose generalization to three dimensions with quaternions. We implement final algorithm to program Autodesk Maya and Mental Ray.