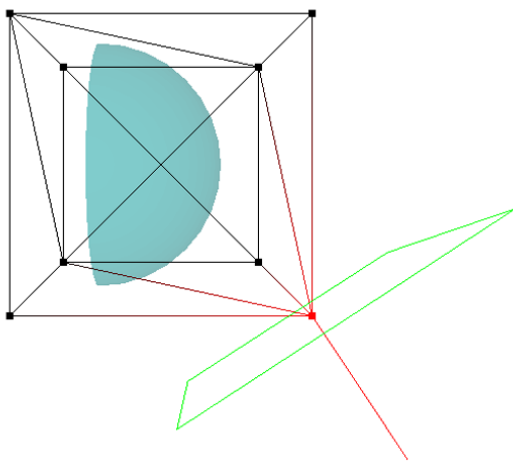


Volume-preserving deformation using generalized barycentric coordinates

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The cage-based deformation of a 3D object through generalized barycentric coordinates is a simple, efficient, effective and hence widely used shape manipulation scheme. Editing vertices of the polyhedral cage induces a smooth space deformation of its interior; the vertices thus become control handles of the final deformation. However, in some application fields, as medicine, constrained volume preserving deformations are required. In this paper, we present a solution that takes advantage of the potential of the deformations based on generalized barycentric coordinates while adding the constraint of keeping a volume

constant. An implementation of the proposed scheme is presented and discussed. A measure of local stress of the deformed volume is also proposed.