COMPUTING CONFORMAL STRUCTURES OF SURFACES

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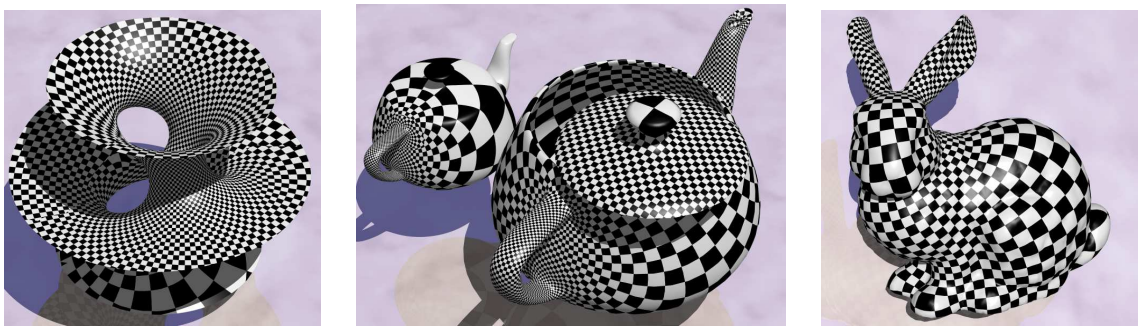

Abstract. According to Klein's Erlangen program, different geometry branches study invariants of a space under different transformation groups. Topology and Euclidean geometry have been widely applied in computer graphics and vision. Between topological transformation group and Euclidean transformation group, there exists a conformal transformation group, which has not been well studied by computer scientists.

We present a systematic way to compute the conformal invariants under this group, and to verify if two surfaces can be transformed to each other by conformal maps. The proposed conformal geometry method has many applications including global conformal surface parameterization, remeshing, geometric morphing in graphics, surface identification and classification in vision.

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