Shape analysis on Lie Groups and Homogeneous manifolds with applications to computer animation

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Abstract:

Shape analysis methods have in the past few years become very popular, both for theoretical exploration as well as from an application point of view. Originally developed for planar curves, these methods have been expanded to higher dimensional curves, surfaces, activities, character motions and many other objects. In this work, we develop a framework for shape analysis of curves in Lie groups for problems of computer animations. In particular, we will use these methods to find cyclic approximations of non-cyclic character animations and interpolate between existing animations to generate new ones.