Mathematical notions used in the theory of
statistical shape analysis

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Abstract

We review key mathematical concepts used in the theory of Statistical Shape Analysis (SSA). The treatment is elementary and aims at providing a brief guide to a large number of results and ideas which are dispersed over an also very large literature on Non-Euclidean Geometry, Differential Geometry, and Topology. The goal is to provide an introduction to the ideas SSA touches in these areas to researchers wishing to apply SSA in practice.