

Comparing [Object model, statistical methods] Pairs via Statistical Performance
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Abstract: For object statistics there are many choices of object representations, among which are boundary point distributions, boundary normal-vector distributions, and skeletal models. There are also many statistical objectives, among which are classification, hypothesis testing, and probability distribution estimation. While the features of each model can be treated as if they lay in a Euclidean space, it has been observed in a variety of cases that it is advantageous to understand each of the feature tuples to lie on an appropriate curved manifold. Finally, there is the choice to accomplish the statistical objective directly in the Euclidean space, directly on the manifold, or by Euclideanizing the features on the manifold and then applying Euclidean methods to the Euclideanized features. In addition, these methods can be applied while paying explicit attention to positional correspondence across the object among the object's training or test instances. This talk will discuss general strategies for comparison on the basis of statistical performance and will give comparisons among a number of the choices.