

# High Dimension - Low Sample Size Data Analysis

J. S. Marron

*University of North Carolina*

In medical imaging applications of functional data analysis, individual "data points" are often quite expensive to obtain. This results in a sample size that is usually much smaller than the dimensionality.

Data of this type motivate the study of very high dimensional probability distributions, where simple calculations show that the usual intuition for conceptualizing such data is very misleading. These same ideas are used to form the basis of a new conceptual model for HDLSS data.

This new model is used to motivate a new discrimination method, whose effectiveness is illustrated in the context of a real data set of Corpus Callosum shapes.