

Title: Feature Significance for Multivariate Densities

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Abstract:

Features such as modes and ridges are often of interest in the underlying density of multivariate samples. Modes, in particular, may correspond to sub-populations of possible interest. The SiZer-type technology, pioneered by Chaudhuri and Marron (*Journal of the American Statistical Association*, 1999), is a useful framework for assessing statistical significance of such features. We describe extensions of this technology to general higher dimensions, with particular emphasis on the trivariate case. Recently advances in three-dimensional graphics in the R environment are shown to have an important role. Examples involving flow cytometric data will be presented.