

A geometric dissimilarity measure for clustering and dimension reduction

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We propose a novel dissimilarity measure, called GeoRatio, for clustering and dimension reduction of multivariate and functional data sampled from non-linear manifolds. The proposed method not only achieves efficient dimension reduction, but also is able to reveal linear substructures of the underlying manifold, thus leading to meaningful and interpretable clustering results. When applied to functional data, it leads to a new functional clustering algorithm and better curve reconstruction when the sample curves are sparsely observed.