

Holistic Non-Unique Clustering

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Technical Note

Theory

Given M number of points, each belonging to R^N , we first find the Proximity Matrix P_{ij} for each (M number of) point with each of all (M Number of points) points, inclusive of itself. The Proximity can be found using Euclidean distance or using the concept stated in [1]. We now find the Contrast Ratio

$\delta = \frac{\text{Min}(P_{ij})}{\text{Max}(P_{ij})}$. Now, for each point $\bar{x}_N \in R^N$, we find all points that are within

$\bar{x}_N \pm \delta(\bar{x}_N)$. We call all these points belonging to a cluster. In this fashion, we can find M number of overlapping Clusters where the membership of a point may not be unique to a given Cluster. We call this type of Clustering as Holistic Non-Unique Clustering.

References

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