Onion-Peeling Outlier Detection in 2-D data Sets

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Abstract

Outlier Detection is a critical and cardinal research task due its array of applications in variety of domains ranging from data mining, clustering, statistical analysis, fraud detection, network intrusion detection and diagnosis of diseases etc. Over the last few decades, distance-based outlier detection algorithms have gained significant reputation as a viable alternative to the more traditional statistical approaches due to their scalable, non-parametric and simple implementation. In this paper, we present a modified onion peeling (Convex hull) genetic algorithm to detect outliers in a Gaussian 2-D point data set. We present three different scenarios of outlier detection using a) Euclidean Distance Metric b) Standardized Euclidean Distance Metric and c) Mahalanobis Distance Metric. Finally, we analyze the performance and evaluate the results.

References


Index Terms

Computer Science  Databases

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Onion Peeling, Convex Hull, Outlier Detection, Computational Statistics