# Exploring graph-based clustering and outlier detection algorithms

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# Stellingen

Behorende bij het proefschrift

*Exploring graph-based clustering and outlier detection algorithms*

1. The graph-based clustering method is very effective for high-dimensional medical datasets as it is able to capture the latent data structures. (Chapter 2)

2. The exact Minimum Spanning Tree is a computational trap; true clustering scalability demands we embrace intelligent approximation. (Chapter 3)

3. The spectral analysis and kernel density estimation of eigenvalues are essential for the improvement of performance in outlier detection. (Chapter 4)

4. Finding outliers in a dataset with different densities and shapes is complicated, the scaled Euclidean distance provides an elegant solution. (Chapter 5)

5. A dedicated medoid selection algorithm finds cluster-based outliers better in combination with a scaled minimum spanning tree data structure. (Chapter 6)

6. There is no universal clustering, only useful clustering.

7. Anomaly detection is well served with robust algorithms for outlier detection. Specific fields like medical diagnosis directly benefit.

8. Outlier detection methods can be successfully used in binary classification tasks. In that, it does not discriminate in content and is employed evenly well in medical or financial fields.

9. Finding an algorithm that fits all outlier detection tasks is the holy grail.

10. The greatest Ph.D. outcome is not the thesis, but the forged ability to thrive in uncertainty.

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