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PRAIRIE VIEW
A&M UNIVERSITY

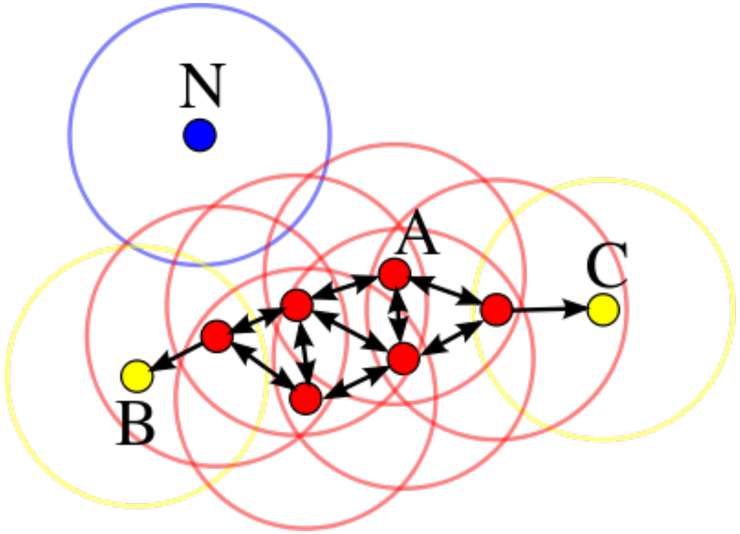
DLI Accelerated Data Science Teaching Kit

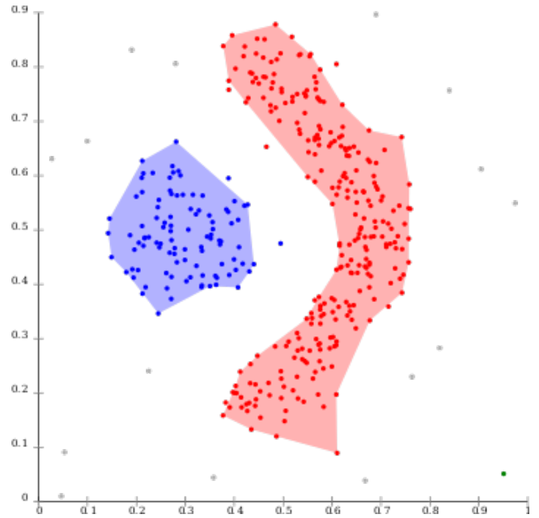
Lecture 15.4 - DBSCAN

DBSCAN

"Density-based spatial clustering with noise"

Received "test-of-time award" at KDD'14 — an extremely prestigious award.





Only need two parameters:
1. "radius" epsilon
2. minimum number of points (e.g., 4) to form a dense region

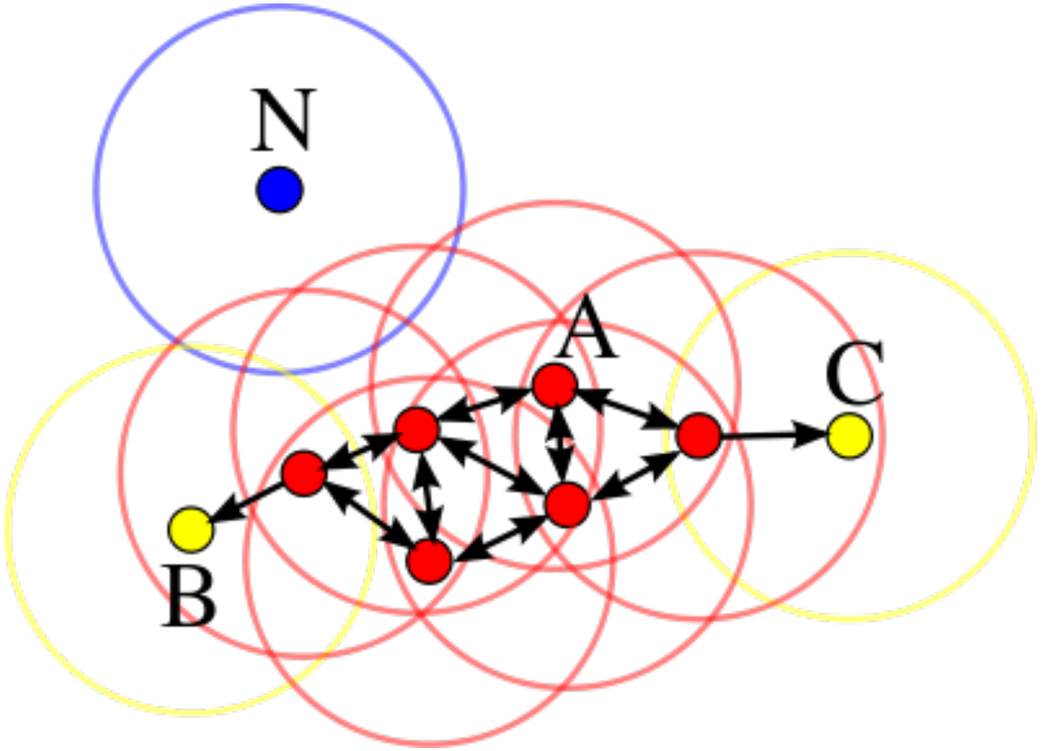
(Yellow "border points" are density-reachable from red "core points", but not vice-versa.)

Images: https://en.wikipedia.org/wiki/DBSCAN

DBSCAN

Main ideas

- Group closely-packed “high-density” points (i.e., many nearby neighbors)
- Outliers in “low-density” not grouped (i.e., few or no nearby neighbors)



Red *core* points (each surrounded by 4 points, including self), reachable from each other, thus from a cluster

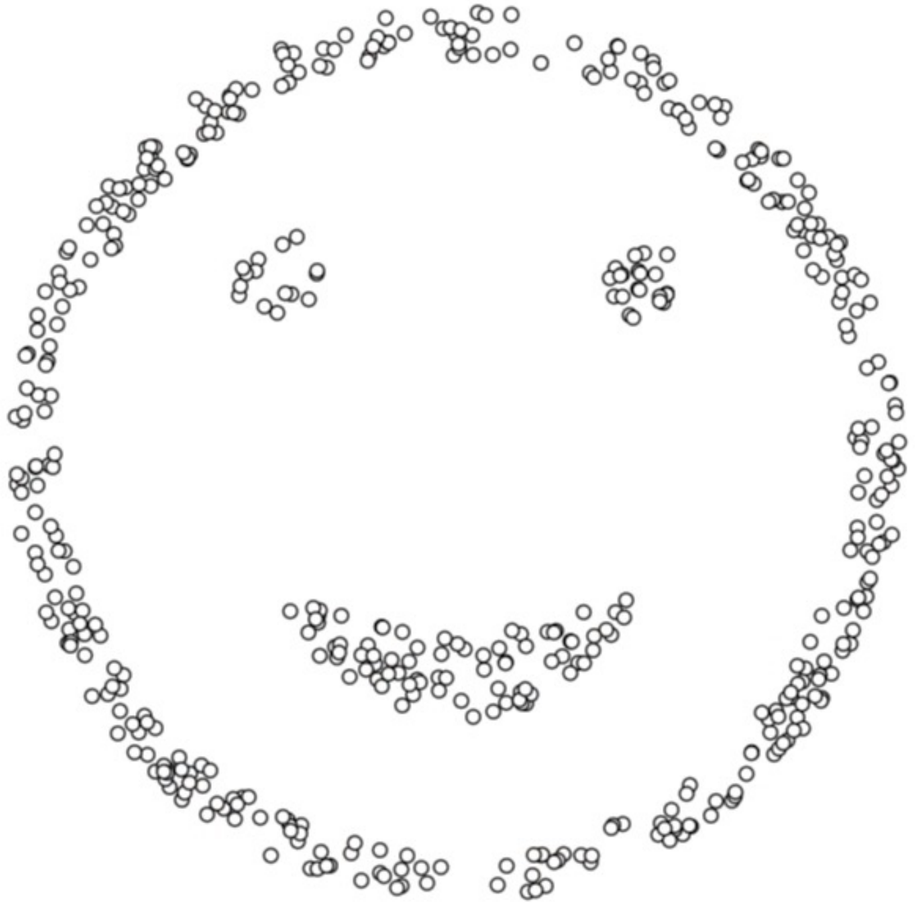
Yellow *density-reachable* points from red points, thus also join the cluster

Blue outlier point not reachable from other points

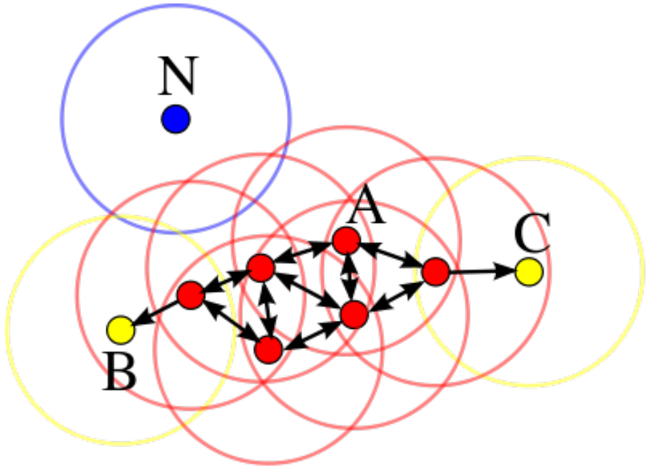
Images: https://en.wikipedia.org/wiki/DBSCAN

Excellent Interactive DBSCAN Demo

https://www.naftaliharris.com/blog/visualizing-dbscan-clustering/



epsilon = 1.00
minPoints = 4



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Thank You