About the method - cluster\_dbscan: density-based method. Identifies dense regions separated by sparse areas; detects noise and arbitrarily shaped clusters.

# Clustering - dbscan  
  
# installation   
#install.packages("daltoolbox")  
  
# loading DAL  
library(daltoolbox)

Load data (iris).

# loading dataset  
data(iris)

Configure DBSCAN; tune minPts (and eps if available) according to density.

# clustering method configuration  
model <- cluster\_dbscan(minPts = 3)

Fit and obtain cluster labels.

# model fitting and labeling  
model <- fit(model, iris[,1:4])  
clu <- cluster(model, iris[,1:4])  
table(clu)

## clu  
## 0 1 2 3 4   
## 26 47 38 4 35

External evaluation using Species (note: DBSCAN may mark noise).

# evaluate model using external metric  
eval <- evaluate(model, clu, iris$Species)  
eval

## $clusters\_entropy  
## # A tibble: 5 × 4  
## x ce qtd ceg  
## <fct> <dbl> <int> <dbl>  
## 1 0 1.18 26 0.205   
## 2 1 0 47 0   
## 3 2 0 38 0   
## 4 3 0 4 0   
## 5 4 0.422 35 0.0985  
##   
## $clustering\_entropy  
## [1] 0.3037218  
##   
## $data\_entropy  
## [1] 1.584963

References - Ester, M., Kriegel, H.-P., Sander, J., Xu, X. (1996). A Density-Based Algorithm for Discovering Clusters in Large Spatial Databases with Noise.