## Feature Selection with Relief

Relief estimates feature relevance by comparing each instance to its nearest neighbors: the nearest hit (same class) and nearest miss (different class). Features that better differentiate classes receive higher weights, guiding ranking and selection.

This example uses the Relief method to estimate feature relevance by considering nearest neighbors and differences across classes, ranking and selecting the most informative features for the target.

Prerequisites - R packages: daltoolbox, daltoolboxdp

# Installation (if needed)  
#install.packages("daltoolboxdp")

# Loading packages  
library(daltoolbox)  
library(daltoolboxdp)

# Example data  
iris <- datasets::iris

# Relief - step by step  
  
# 1) Fit the selector with target "Species"  
myfeature <- fit(fs\_relief("Species"), iris)  
  
# 2) View selected features  
print(myfeature$features)

## [1] "Petal.Width" "Petal.Length"

# 3) Transform data to keep selected features + target  
data <- transform(myfeature, iris)  
print(head(data))

## Petal.Width Petal.Length Species  
## 1 0.2 1.4 setosa  
## 2 0.2 1.4 setosa  
## 3 0.2 1.3 setosa  
## 4 0.2 1.5 setosa  
## 5 0.2 1.4 setosa  
## 6 0.4 1.7 setosa

References - Kononenko, I. (1994). Estimating attributes: Analysis and extensions of Relief. ECML.