

# Test

2023-04-30

```
# load required libraries
library(parallel)
library(dplyr)

##
## Attaching package: 'dplyr'
## The following objects are masked from 'package:stats':
##
##   filter, lag
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
library(stats)
library(knitr)
library(caret)

## Loading required package: ggplot2
## Loading required package: lattice
library(ggplot2)
library(foreach)
```

## Load RDAs

```
#load(file = file.path(root_dir,"R_data","X_wm.Rda"))
load(file = file.path(root_dir,"R_data","X_gm.Rda"))
#load(file = file.path(root_dir,"R_data","X_cb.Rda"))
```

## PCA

```
# fnto perform PCA and save output
pca_gm <- perform_pca(X_gm)

## [1] "n components: 144"
save(pca_gm, file = file.path(root_dir, "R_data", "pca_gm.Rda"))

# standard deviations
head(pca_gm$sdev)

## [1] 489.0322 312.9959 206.8299 179.6178 166.9825 161.2110
head(pca_gm$X_train_pca[,1:5])
```

```
##          PC1          PC2          PC3          PC4          PC5
## 1  -78.960615  546.72492  77.799526 -27.766567  10.329854
## 2 -355.488408   -6.36760 -11.482086 -10.352361 -36.274287
## 3 -312.313462  -32.21592  98.245482 164.364442  78.612191
## 4  -47.230309 -198.98270  20.730421  84.142781  -1.034772
## 5 -332.558080   -7.22972  42.945191   4.073806 -14.383787
## 6   -4.753077 -146.72451  -2.570854 -49.131455 -37.201489
```

```
dim(pca_gm$X_train_pca)
```

```
## [1] 347 144
```

```
head(pca_gm$y_train)
```

```
## [1] 1 2 1 1 1 1
```

```
length(pca_gm$y_train)
```

```
## [1] 347
```

```
length(pca_gm$y_test)
```

```
## [1] 87
```

```
head(pca_gm$X_test_pca[,1:5])
```

```
##          PC1          PC2          PC3          PC4          PC5
## 7  -201.7355  -96.19211   6.594114  76.77934  -4.878996
## 8  1291.6726  598.72085  637.157334 -70.95430  316.413289
## 14 1572.9309  332.31940 -39.250022 489.34523 155.342469
## 21 -148.0045 -180.20819  40.444634  65.69511 -11.984633
## 27  553.5493 -511.50623 -78.643868 -26.78477 -29.980930
## 34 -563.3232  111.22805  39.143326 -36.86734 -25.782406
```

```
dim(pca_gm$X_test_pca)
```

```
## [1] 87 144
```