

# Projet Analyse de Donnée

FERRERE HOAREAU Anthony et CALLIS Guilhem

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## R Markdown

Chargement du jeux de donnée:

```
## Le chargement a nécessité le package : ggplot2
```

```
##      T1_1H_R1      T1_2H_R1      T1_3H_R1      T1_4H_R1
## Min.   :-3.58436  Min.    :-4.3034  Min.    :-2.26607  Min.    :-2.56731
## 1st Qu.:-0.22978  1st Qu.:-0.1404  1st Qu.:-0.28249  1st Qu.:-0.42895
## Median :-0.03631  Median : 0.1420  Median :-0.05927  Median : 0.16867
## Mean   :-0.02951  Mean    : 0.1767  Mean    : 0.04103  Mean    : 0.05281
## 3rd Qu.: 0.12204  3rd Qu.: 0.3904  3rd Qu.: 0.15839  3rd Qu.: 0.44483
## Max.    : 5.06654  Max.     : 7.2821  Max.     : 6.61788  Max.     : 6.87671
##      T1_5H_R1      T1_6H_R1      T2_1H_R1      T2_2H_R1
## Min.   :-5.5106  Min.    :-2.9759  Min.    :-4.30401  Min.    :-4.5825
## 1st Qu.:-0.4788  1st Qu.:-0.6124  1st Qu.:-0.43935  1st Qu.:-0.9932
## Median :-0.1984  Median :-0.3724  Median : 0.13065  Median : 0.3289
## Mean   :-0.1585  Mean    :-0.2416  Mean    : 0.06039  Mean    : 0.4714
## 3rd Qu.: 0.2077  3rd Qu.: 0.2413  3rd Qu.: 0.46011  3rd Qu.: 1.9464
## Max.    : 5.8582  Max.     : 4.1009  Max.     : 8.66345  Max.     : 8.7483
##      T2_3H_R1      T2_4H_R1      T2_5H_R1      T2_6H_R1
## Min.   :-6.6293  Min.    :-5.813548  Min.    :-5.8017  Min.    :-5.6784
## 1st Qu.:-2.0451  1st Qu.:-2.406108  1st Qu.:-2.4172  1st Qu.:-2.5552
## Median : 0.3733  Median : 0.008421  Median : 0.7556  Median : 1.8857
## Mean    : 0.3805  Mean    : 0.197409  Mean    : 0.1521  Mean    : 0.2313
## 3rd Qu.: 2.7644  3rd Qu.: 2.699218  3rd Qu.: 2.5236  3rd Qu.: 2.7235
## Max.    : 8.9881  Max.     : 7.503939  Max.     : 7.0606  Max.     : 8.8815
##      T3_1H_R1      T3_2H_R1      T3_3H_R1      T3_4H_R1
## Min.   :-2.9561  Min.    :-4.9884  Min.    :-5.8280  Min.    :-6.0789
## 1st Qu.:-0.4409  1st Qu.:-1.1066  1st Qu.:-1.5925  1st Qu.:-2.4930
## Median : 0.1573  Median : 0.6914  Median : 0.9585  Median : 0.9982
## Mean    : 0.1714  Mean    : 0.5878  Mean    : 0.6387  Mean    : 0.2736
## 3rd Qu.: 0.6673  3rd Qu.: 2.3016  3rd Qu.: 2.7533  3rd Qu.: 2.7854
## Max.    : 8.6849  Max.     : 8.6560  Max.     : 8.0950  Max.     : 7.0103
##      T3_5H_R1      T3_6H_R1      T1_1H_R2      T1_2H_R2
## Min.   :-6.910  Min.    :-4.7625  Min.    :-2.11580  Min.    :-2.75004
## 1st Qu.:-2.487  1st Qu.:-2.0911  1st Qu.:-0.28225  1st Qu.:-0.27271
## Median : 1.156  Median : 1.8690  Median :-0.02432  Median :-0.04075
## Mean    : 0.258  Mean    : 0.3913  Mean    :-0.04445  Mean    : 0.10717
## 3rd Qu.: 2.709  3rd Qu.: 2.4879  3rd Qu.: 0.15670  3rd Qu.: 0.25383
## Max.    : 6.529  Max.     : 8.6398  Max.     : 4.70943  Max.     : 7.03638
```

```

##      T1_3H_R2      T1_4H_R2      T1_5H_R2      T1_6H_R2
## Min.      :-3.2539 Min.      :-3.50770 Min.      :-3.3307 Min.      :-2.4863
## 1st Qu.: -0.1229 1st Qu.: -0.51001 1st Qu.: -0.6437 1st Qu.: -0.9686
## Median : 0.2674 Median : -0.27091 Median : -0.3845 Median : -0.7215
## Mean    : 0.3033 Mean    : -0.02457 Mean    : -0.2410 Mean    : -0.3082
## 3rd Qu.: 0.5068 3rd Qu.: 0.27652 3rd Qu.: 0.1442 3rd Qu.: 0.5814
## Max.    : 7.1995 Max.    : 6.52284 Max.    : 5.2469 Max.    : 3.9054
##      T2_1H_R2      T2_2H_R2      T2_3H_R2      T2_4H_R2
## Min.      :-2.38587 Min.      :-5.8266 Min.      :-4.6135 Min.      :-6.4553
## 1st Qu.: -0.48477 1st Qu.: -1.2309 1st Qu.: -1.4511 1st Qu.: -2.3416
## Median : 0.03105 Median : 0.6644 Median : 0.5351 Median : 0.5323
## Mean    : 0.08932 Mean    : 0.4684 Mean    : 0.5999 Mean    : 0.1279
## 3rd Qu.: 0.61495 3rd Qu.: 2.1298 3rd Qu.: 2.5954 3rd Qu.: 2.4618
## Max.    : 8.59820 Max.    : 8.8928 Max.    : 8.4956 Max.    : 8.0010
##      T2_5H_R2      T2_6H_R2      T3_1H_R2      T3_2H_R2
## Min.      :-6.1685 Min.      :-6.2234 Min.      :-3.22436 Min.      :-6.0944
## 1st Qu.: -2.4058 1st Qu.: -2.6251 1st Qu.: -0.61705 1st Qu.: -1.3567
## Median : 1.0892 Median : 2.0014 Median : 0.07589 Median : 0.7670
## Mean    : 0.1411 Mean    : 0.1572 Mean    : 0.11618 Mean    : 0.5725
## 3rd Qu.: 2.5033 3rd Qu.: 2.5375 3rd Qu.: 0.76673 3rd Qu.: 2.3150
## Max.    : 7.4521 Max.    : 8.7777 Max.    : 8.77729 Max.    : 8.6354
##      T3_3H_R2      T3_4H_R2      T3_5H_R2      T3_6H_R2
## Min.      :-6.0135 Min.      :-6.0345 Min.      :-6.8294 Min.      :-7.24672
## 1st Qu.: -1.8079 1st Qu.: -2.2277 1st Qu.: -2.5646 1st Qu.: -2.80051
## Median : 1.1183 Median : 1.1769 Median : 1.6539 Median : 1.92082
## Mean    : 0.5828 Mean    : 0.3157 Mean    : 0.1338 Mean    : 0.05484
## 3rd Qu.: 2.8892 3rd Qu.: 2.6455 3rd Qu.: 2.5664 3rd Qu.: 2.46450
## Max.    : 8.2637 Max.    : 7.4777 Max.    : 6.9137 Max.    : 8.69285
##      ExpT1      ExpT2      ExpT3
## Length:542      Length:542      Length:542
## Class :character Class :character Class :character
## Mode  :character Mode  :character Mode  :character
##
##
##
## Le chargement a nécessité le package : FactoMineR

## Le chargement a nécessité le package : factoextra

## Welcome! Want to learn more? See two factoextra-related books at https://goo.gl/ve3WBa

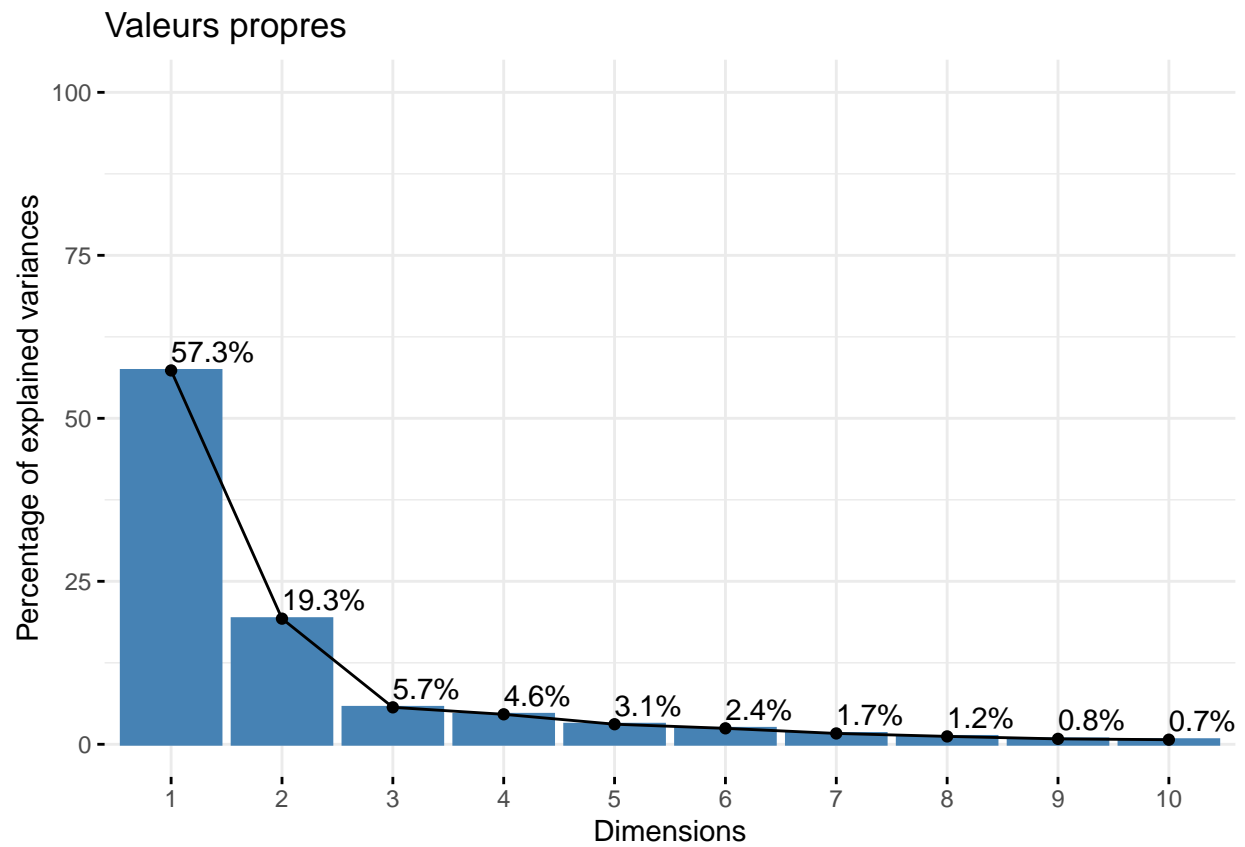
## Le chargement a nécessité le package : corrplot

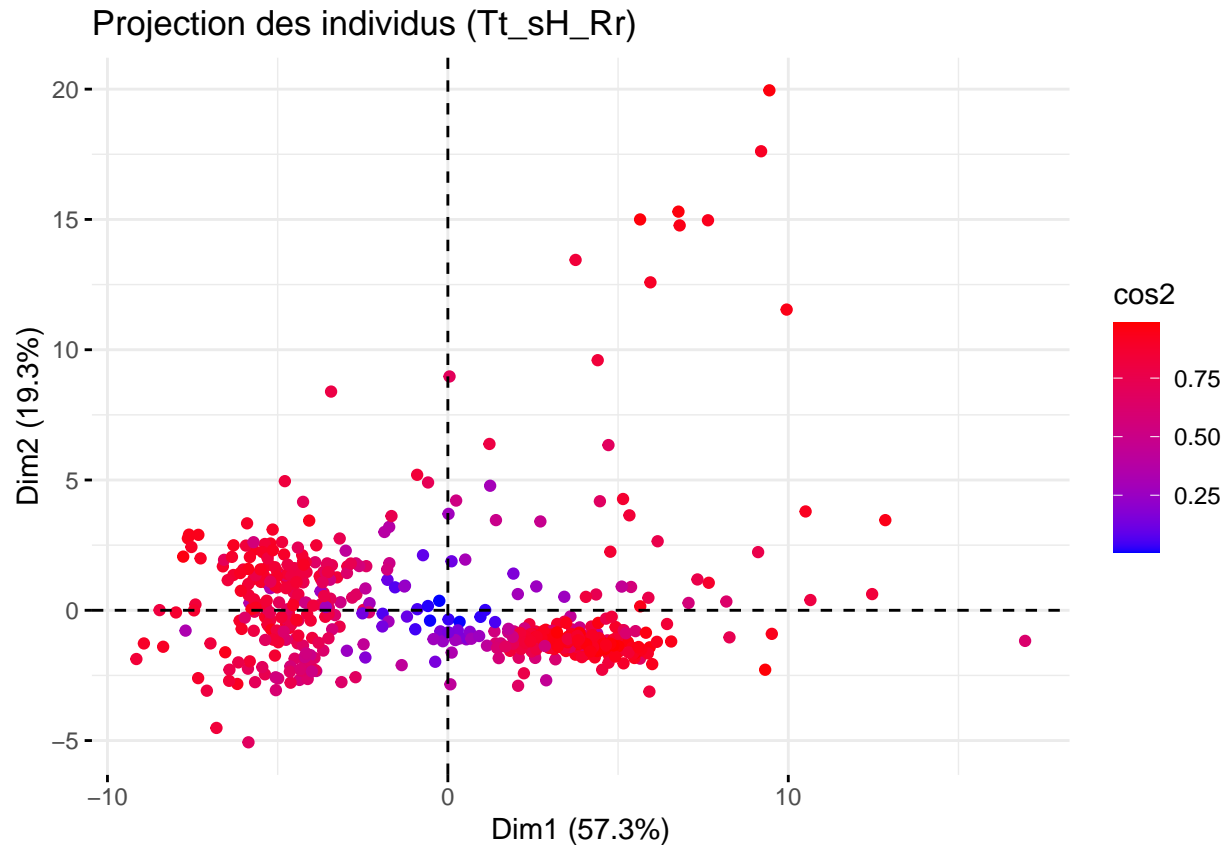
## corrplot 0.95 loaded

##      eigenvalue percentage of variance cumulative percentage of variance
## comp 1  20.643727183      57.34368662      57.34369
## comp 2   6.938281435      19.27300398      76.61669
## comp 3   2.041274447       5.67020680      82.28690
## comp 4   1.656135505       4.60037640      86.88727
## comp 5   1.109348959       3.08152489      89.96880

```

|            |             |            |           |
|------------|-------------|------------|-----------|
| ## comp 6  | 0.881791877 | 2.44942188 | 92.41822  |
| ## comp 7  | 0.599431245 | 1.66508679 | 94.08331  |
| ## comp 8  | 0.436409980 | 1.21224994 | 95.29556  |
| ## comp 9  | 0.300326182 | 0.83423939 | 96.12980  |
| ## comp 10 | 0.254557652 | 0.70710459 | 96.83690  |
| ## comp 11 | 0.195646575 | 0.54346271 | 97.38036  |
| ## comp 12 | 0.114623243 | 0.31839790 | 97.69876  |
| ## comp 13 | 0.113438274 | 0.31510632 | 98.01387  |
| ## comp 14 | 0.098934866 | 0.27481907 | 98.28869  |
| ## comp 15 | 0.084015374 | 0.23337604 | 98.52206  |
| ## comp 16 | 0.075403512 | 0.20945420 | 98.73152  |
| ## comp 17 | 0.068914101 | 0.19142806 | 98.92295  |
| ## comp 18 | 0.060357899 | 0.16766083 | 99.09061  |
| ## comp 19 | 0.056624240 | 0.15728956 | 99.24790  |
| ## comp 20 | 0.045538131 | 0.12649481 | 99.37439  |
| ## comp 21 | 0.037080890 | 0.10300247 | 99.47739  |
| ## comp 22 | 0.032099053 | 0.08916404 | 99.56656  |
| ## comp 23 | 0.026356683 | 0.07321301 | 99.63977  |
| ## comp 24 | 0.021809019 | 0.06058061 | 99.70035  |
| ## comp 25 | 0.015239265 | 0.04233129 | 99.74268  |
| ## comp 26 | 0.014299054 | 0.03971959 | 99.78240  |
| ## comp 27 | 0.011721521 | 0.03255978 | 99.81496  |
| ## comp 28 | 0.010954844 | 0.03043012 | 99.84539  |
| ## comp 29 | 0.009729805 | 0.02702724 | 99.87242  |
| ## comp 30 | 0.009492364 | 0.02636768 | 99.89879  |
| ## comp 31 | 0.008089909 | 0.02247197 | 99.92126  |
| ## comp 32 | 0.006904142 | 0.01917817 | 99.94044  |
| ## comp 33 | 0.006571646 | 0.01825457 | 99.95869  |
| ## comp 34 | 0.005669160 | 0.01574767 | 99.97444  |
| ## comp 35 | 0.004995223 | 0.01387562 | 99.98831  |
| ## comp 36 | 0.004206745 | 0.01168540 | 100.00000 |





```
## [1] 542 18
```

```
## Warning in mean.default(DataExpMoy_full[DataExpMoy_full$ExpT1 == "Sur", :  
## l'argument n'est ni numérique, ni logique : renvoi de NA
```

```
## [1] NA
```

|            | eigenvalue  | percentage of variance | cumulative percentage of variance |
|------------|-------------|------------------------|-----------------------------------|
| ## comp 1  | 405.0981814 | 74.74136189            | 74.74136                          |
| ## comp 2  | 63.5464399  | 11.72443541            | 86.46580                          |
| ## comp 3  | 19.8878459  | 3.66934427             | 90.13514                          |
| ## comp 4  | 16.8479751  | 3.10848248             | 93.24362                          |
| ## comp 5  | 10.2927617  | 1.89903352             | 95.14266                          |
| ## comp 6  | 6.4759341   | 1.19482180             | 96.33748                          |
| ## comp 7  | 5.5998433   | 1.03318142             | 97.37066                          |
| ## comp 8  | 2.8740502   | 0.53026756             | 97.90093                          |
| ## comp 9  | 2.4754020   | 0.45671624             | 98.35764                          |
| ## comp 10 | 1.9014013   | 0.35081205             | 98.70846                          |
| ## comp 11 | 1.6037165   | 0.29588865             | 99.00435                          |
| ## comp 12 | 1.4238320   | 0.26269962             | 99.26704                          |
| ## comp 13 | 1.1833848   | 0.21833668             | 99.48538                          |
| ## comp 14 | 0.9911234   | 0.18286410             | 99.66825                          |
| ## comp 15 | 0.7400607   | 0.13654256             | 99.80479                          |
| ## comp 16 | 0.5887171   | 0.10861938             | 99.91341                          |
| ## comp 17 | 0.4693307   | 0.08659237             | 100.00000                         |

