Latex-Template

PROJECT TITLE

Project Description

TITLE

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rédigé par
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Abstract

Lorem ipsum dolor sit amet. Ut expedita sunt est delectus quia ad nostrum delectus eum magni dolor. Eos nemo minima sit deleniti porro et necessitatibus minima ab quia necessitatibus in beatae autem et voluptas labore.
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contribution

si jamais vous apercevez des fautes dans le polycopié, merci de rédiger une issue sur Github à l'adresse:

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1.1.1 subsection example

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$$\mathbb{Y} = m(x) + \varepsilon$$

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A.1 with subsection

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Appendix B

Code Examples

B.1 with comments

```r
    # ——— install ——— #
    install.packages(c("fda", "fda.usc"))
    # ——— general packages ——— #

    library(data.table)
    # ——— FDA packages ——— #

    library(fda)
    library(fda.usc)
```

B.2 Math in code bloc

```r
# |      date       | X_1 | X_2 | ··· | X_p |
# | Jan 1st 12:00 | ⋮   | ⋮   |     | ⋮   |
data <- fread("data.csv")


# un individu = une ligne
# donc pour une série temporelle, il faut transposer les observations
 ↪  et avoir la suite des données disposées sur une ligne.
fdata_standard_index <- fda.usc::fdata(
    mdata = t(X),
    argvals = to_unit_interval(
    #                 ↑
    # on doit ramener les dates dans l'intervalle [0,1]
        data[, .(date)]
    )
)
```

B.3 some generic code

```r
nb_points <- ncol(fdata)
nb_ts <- nrow(fdata)

fda_optim_basis <- fda.usc::optim.basis(
    fdataobj =
     ↪  select_representative_observations_for_mean_function_fdata(fdata_ts
     ↪  = fdata, is_iid = is_iid),
    type.CV = fda.usc::GCV.S,
    W = NULL,
    lambda = lambda_CV_look_list,
    numbasis = num_basis__seq,
    type.basis = "bspline",
    verbose = TRUE
)
```

another code block :

```r
fda_optimal_basis <- ...
fdata_obj_temp <- fda_optimal_basis[["fdata.est"]]
fdata_obj <- fda.usc::fdata2fd(fdata_obj_temp)
fpca_result <- fda::pca.fd(
    fdobj = fdata_obj,
    nharm = 3,
    # centrer les données
    centerfns = TRUE
)
```

B.4 inline block with math

Regardons désormais à quoi ressemble la sortie :

$$\texttt{fpca\_result\$scores} = \begin{array}{c} \\ \downarrow [X_i] \end{array} \begin{array}{c} \longrightarrow [\phi_k] \\ \begin{bmatrix} \ddots & \cdots & \vdots \\ \vdots & \xi_i^{[k]} = \langle X_i - \mu | \phi_k \rangle & \vdots \\ \cdots & \cdots & \ddots \end{bmatrix} \end{array}$$

Appendix C

Article's Appendix

C.1

C.2

Bibliography

[1] A. Monfort C. Gourieroux and A. Trognon. Pseudo maximum likelihood methods: Theory. The Econometric Society, 52(3), 1984. pages 681-700. DOI : https://doi.org/10.2307/1913471.