

## Hadrien Lorenzo

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## University curriculum

- 2020 - today : Post doctoral student at Inria, Astral Team. Funding provided by Sartorius.
- 2019 : Phd in Biostatistics, under co-direction of J. Saracco and R. Thiébaud, Université de Bordeaux, France.
- 2015 :
  - Engineer CentraleSupélec, MATIS («*Applied Mathematics for Information and Signal Processing*»), Gif-sur-Yvette, France.
  - Research master, Université Paris-Sud, ATSI («*Automation and Signal and Image Processing*»), Orsay, France.
- 2008 - 2011 : Student in preparatory classes, PSI. Lycée Masséna, Nice, France.
- 2008 : Scientific Baccalaureate, with honors. Lycée Guillaume Apollinaire, Nice, France.

## Collaborations

- [Corporate Research Advanced Data Analytics](#), Sartorius, Bordeaux : [Olivier Cloarec](#).
- [Statify team](#), Inria Grenoble Rhône-Alpes, Grenoble, France : [Stéphane Girard](#).
- [Astral team](#), Inria Bordeaux Sud-Ouest, Bordeaux : [Jérôme Saracco](#).
- [Biomarkers team](#), INRA, Bordeaux : [Marie-Pierre Ellies](#).
- [Vintage team](#), INSERM U1219, Bordeaux : [Misbah Razzaq](#), [Felipe Leal Valentim](#) and [David-Alexandre Trégouët](#).
- [SISTM team](#), INSERM U1219, Inria BSO, Bordeaux : [Rodolphe Thiébaud](#), [Laura Richert](#), [Solenne Delahaye](#), [Henri Bonnabau](#) and [Boris Hejblum](#).
- [University Medical Center Hamburg-Eppendorf](#), 1<sup>st</sup> Department of Medicine, 20246, Hambourg, Allemagne : [Anne Rechten](#).
- [International AIDS Vaccine Initiative](#), Londres, Royaume-Uni : [Jonathan Hare](#).

## Ongoing works

- ARBEL, J., GIRARD, S., **LORENZO, H.** “Shrinkage for Extreme Partial Least Squares(SEPaLS)”. See <https://hal.science/hal-04251783>.
- GIRARD, S., **LORENZO, H.** “HOMogeneously Penalized SIR (HOPSIR)”.
- **LORENZO, H.**, SARACCO, J., WEINREICH, C. “Soft and hard thresholding for variable selection in SIR”
- CLOAREC, O., **LORENZO, H.**, SARACCO, J. “Koh-Lanta, missing data imputation in supervised context”, Submitted to *Statistical Analysis and Data Mining*

## Published articles

- GIRARD, S., LORENZO, H., SARACCO, J. «Advanced topics in Sliced Inverse Regression.», *Journal of Multivariate Analysis*, 2022, [📄](#)
- LORENZO, H., CLOAREC, O., RODOLPHE, T., SARACCO, J. «Data-Driven Sparse Partial Least Squares.», *Statistical Analysis and Data Mining*, 2022, [📄](#)
- ELLIES-OURY, M.-P. ,GRUFFAT, D., LISTRAT, A., LORENZO, H., CHAVENT, M., SARACCO, J. «The relationships between Sensory and Nutritional Quality are not consistent from one muscle to another in the same bovine carcass.», *Negative Results*, 2021, [📄](#)
- LORENZO, H., R. MISBAH, J. ODEBER, P.-E. MORANGE, J. SARACCO, D.-A. TRÉGOÛET AND R. THIÉBAUT. 2019, «High-dimensional multi-block analysis of factors associated with thrombin generation potential», *2019 IEEE 32nd International Symposium on Computer-Based Medical Systems (CBMS)*, IEEE, p. 453–458, [📄](#)
- ELLIES-OURY, M.-P.\* , H. LORENZO\* , C. DENOYELLE, J. SARACCO AND B. PICARD. 2019, «An original methodology for the selection of biomarkers of tenderness in five different muscles», *Foods*, vol. 8, n°6, p. 206, [📄](#)
- RECHTIEN, A.\*, L. RICHERT\*, H. LORENZO, . . . , R. THIÉBAUT, M. ALTFLED AND M. ADDO. 2017, «Systems Vaccinology Identifies an Early Innate Immune Signature as a Correlate of Antibody Responses to the Ebola Vaccine rVSV-ZEBOV», *Cell reports*, vol. 20, n°9, p. 2251–2261., [📄](#)

## Book chapter

- LORENZO, H., SARACCO, J. «Computational Outlier Detection Methods in Sliced Inverse Regression.», *Advances in Contemporary Statistics and Econometrics, Festschrift in Honor of Christine Thomas-Agnan*, Springer, p. 101-122, 2021, [📄](#)

## Oral communications in an international congress

- LORENZO, H., O. CLOAREC AND J. SARACCO. 2022, «Koh-Lanta, missing data imputation in supervised context», *Chimiométrie Brest*.
- GIRARD, S., LORENZO, H. AND J. SARACCO. 2022, «Advanced topics in Sliced Inverse Regression», *50<sup>th</sup> Anniversary Jubilee Edition of JMVA, 2022*.
- LORENZO, H. AND J. SARACCO. 2022, «Detection of atypic observations in SIR regression», *Dataquitaine 2022*, Bordeaux.
- LORENZO, H., O. CLOAREC AND J. SARACCO. 2021, «How to deal with missing values in the high dimensional supervised context?», *CMStatistics 2021, King's College, London, UK*. [📄](#)
- LORENZO, H., R. THIÉBAUT, J. SARACCO AND O. CLOAREC. 2021, «Multiblock supervised analyses. Should we really normalize blocks?», *17<sup>th</sup> Scandinavian Symposium on Chemometrics - SSC17*, Aalborg, Denmark. [📄](#)
- LORENZO, H., R. THIÉBAUT AND J. SARACCO. 2018, «Multi-block high-dimensional lasso penalized analysis with imputation of missing data applied to postgenomic data in an Ebola vaccine trial», *Annual workshop on Statistical Methods for Post Genomic Data - SMPGD 2018*, Montpellier, France. [📄](#)
- LORENZO, H., J. SARACCO AND R. THIÉBAUT. 2019, «High-Dimensional Multi-Block Analysis of Factors Associated with Thrombin Generation Potential», *32nd IEEE CBMS International Symposium on Computer-Based Medical Systems - CBMS2019*, Cordoue, Espagne. [📄](#)

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\*. Same contribution from the authors.

## Oral communications in a national congress

- LORENZO, H., J. SARACCO AND C. WEINREICH. 2022, «Sélection de variables en régression SIR par seuillage doux ou seuillage dur de la matrice d'intérêt», *Journées de Statistique 2022 - Société Française de Statistique (SFdS)*, Lyon, France.
- LORENZO, H., O. CLOAREC, R. THIÉBAUT AND J. SARACCO. 2021, «Détection d'individus atypiques en régression SIR», *Journées de Statistique 2021 - Société Française de Statistique (SFdS)*, Nice, France.
- LORENZO, H., O. CLOAREC, R. THIÉBAUT AND J. SARACCO. 2021, «A sparse PLS between Statistics and Machine Learning», *Journées de Statistique 2021 - Société Française de Statistique (SFdS)*, Nice, France.
- LORENZO, H., J. SARACCO AND R. THIÉBAUT. 2018, «Une PLS multivoie parcimonieuse avec observations manquantes pour données hétérogènes», *Journées de Statistique 2018 - Société Française de Statistique (SFdS)*, EDF Lab Paris Saclay, France. [e](#)

## Poster communications

- LORENZO, H., O. CLOAREC AND J. SARACCO. 2022, «Imputation for supervised learning problems in high dimension», *Compstat 2022*, Bologne. [f](#)
- LORENZO, H., J. SARACCO ET R. THIÉBAUT. 2019, «Apprentissage supervisé pour données massives multi-blocs incomplètes», *JED 2019 - EDSP2*, Bordeaux. [f](#)
- HARE, J., C. STREATFIELD, J. YATES, W. KILEMBE, S. LAKHI, H. LORENZO, ... ET J. GILMOUR. 2016. «CD4 T-cell Counts More Closely Associate with the Cytokine Profiles Observed in Acutely Infected Volunteers than Viral Load or Replicative Capacity», *AIDS RESEARCH AND HUMAN RETROVIRUSES* (Vol. 32, pp. 170-170). 140 HUGUENOT STREET, 3RD FL, NEW ROCHELLE, NY 10801 USA : MARY ANN LIEBERT, INC. [f](#)

## Seminars

- Inria, BootSir, 2022, Bordeaux
- Corporate Research Advanced Data Analytics (Sartorius), How Koh-Lanta works, November 2021, Bordeaux.
- ENS of Lyon, L3, «Introduction to statistical learning», 21<sup>st</sup> of January 2020, Sept Laux, France.
- Sanofi Pasteur, A summary of my works, 21<sup>st</sup> of January 2020, Lyon, France.
- Biostatistics seminars, BPH U1219, Bordeaux. [f](#)
- SISTM team seminars, BPH U1219, Bordeaux.
- ISPED doctoral students' seminars, BPH U1219, Bordeaux.

## Teaching

- [DU BDSI \(Big data and statistics for the engineer\)](#), Missing data treatment, ENSC, Bordeaux :
  - 2021 : Lecture and tutorial : 8 hours.
  - 2022 : Lecture and tutorial, PLS and missing-data treatment : 2,5 full days.
- [M2 engineer - ENSEIRB-MATMECA](#), Probabilities and Statistics, Bordeaux :
  - 2020-2021 : 46 hours.
  - 2021-2022 : 22 hours.
- [DU BDSI \(Big data and statistics for the engineer\)](#), ENSC, Bordeaux :
  - 2018-2019 : Lecture and tutorial : 11 hours.
- [M2 engineer - Biostatistics](#), ENSAI, Rennes (Bruz), France :
  - 2018-2019 : Genetic project : 21 hours.

- [M2 - Biostatistics](#), ISPED, Bordeaux :
  - 2017-2018 : Lecture and tutorial : 26 hours.
  - 2018-2019 : Lecture and tutorial : 6 hours.
- [Health and Science mixed-master](#), M1, ISPED, Bordeaux :
  - 2018-2019 : Lecture and tutorial : 24 hours.
- [ISPED Summer School](#), Bordeaux :
  - 2017-2018 : Lecture and tutorial : 6 hours.

## Supervision

- Clément Weinreich, 3 months project, 2022-ongoing, development of the **SIR-thresholded** approach, participation to the JDS 2022 and collaboration to a paper.
- Arthur Saracco, 3 months project, 2022, App. development.
- Alexandre Conanec, steering committee of thesis, title «*Modelling of the optimisation of the management of beef production qualities and performances*», co-supervision by MP Ellies-Oury and J Sarracco.
- Arthur Saracco, 1 months internship, June to July 2021. «*Création de Quiz d'évaluation de notions de probabilités et de statistique.*» Co-Supervision with J. Saracco.
- Valentin Kochegarov, 3 months internship, May to July 2019. «*Etude des méthodes de l'analyse de l'expression différentielle des données de séquençage d'ARN à haut débit.*» Co-Supervision with R. Thiébaud.

## Software productions & participations

- Package **SIRthresholded** on on CRAN via <https://cran.r-project.org> and on GitHub via [Clement-W/SIR-thresholded](#).
- Package **ddsPLS** :
  - New R version (**C++** deep optimization code) on GitHub via <https://github.com/hlorenzo/ddsPLS2>.
  - Implementation of multiple imputation Koh-Lanta algorithm.
  - R version stable via [CRAN](#) and the associated [vignette](#).
  - Python version in development on GitHub via [https://github.com/hlorenzo/py\\_ddspls](https://github.com/hlorenzo/py_ddspls).
- Package **outlierSIR** on GitHub via <https://github.com/hlorenzo/outlierSIR>
- Personal website (R blogdown) via <https://hadrienlorenzo.netlify.com/>.