CORENTIN SÉGALAS

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RESEARCH EXPERIENCE

Research Fellow in Statistics   Feb 2023 – Now
Université de Bordeaux & *Bordeaux Population Health Research Center*

- Area of research: longitudinal data, sparse functional data, random survival forest, survival analysis, dynamic prediction.

Research Fellow in Statistics   Jan 2022 – Oct 2022
Université Paris-Cité

- Area of research: causal inference, observational data, personalized medicine, machine learning, individualized treatment regime, dynamic treatment regime.

Research Fellow in Medical Statistics   Feb 2020 – Dec 2021
London School of Hygiene and Tropical Medicine

- Area of research: pharmaco-epidemiology, high dimension, machine learning, causal inference, confounding, propensity score, missing data, electronic health record data.

PhD in Biostatistics   Oct 2016 – Dec 2019
Université de Bordeaux & *Bordeaux Population Health Research Center*

- Area of research: dementia, neuro-degenerative diseases, longitudinal data, non-linear mixed models, changepoint models, hypothesis test, observational data.

EDUCATION

MSc – Statistics   Sept 2014 – Jun 2016
Université de Bordeaux

BSc – Mathematics   Sept 2011 – Jun 2014
Université de Bordeaux

ORAL COMMUNICATIONS

INVITED TALKS

Bordeaux Public Health Data Science Network Conference, Bordeaux   July 2023
Longitudinal data analysis with dropout: mixed models or functional principal component analysis?

Annual French Biometric Society Young Researcher Conference, Paris   Oct 2020
Inference for random changepoint models: application to the pre-dementia cognitive decline, Daniel Schwartz Award talk

CONTRIBUTED TALKS

Annual ISCB Conference, Thessaloniki   July 2024
Dynamic random survival forests using functional principal component analysis for the prediction of survival outcomes from time-varying predictors

Annual French Statistical Society Conference, Bordeaux   June 2024
Non parametric dynamic prediction of a risk of event from longitudinal predictors

Annual French Biometric Societies Conference, Toulouse   Nov 2023
Robustness to missing data: a comparison between linear mixed models and functional principal component analysis

Annual French Statistical Society Conference, Brussels   July 2023
Propensity score matching after multiple imputation when a confounder has missing data

Annual ISCB Conference, Lyon   July 2021
Multiple imputation in propensity score matching: obtaining correct confidence intervals

Annual IWSM Conference, Bilbao   July 2020
A semi-latent class model for estimating the time of differentiation of cognitive decline between cases and controls

Annual ISCB Converence, Leuven   July 2019
Inferential methods for random changepoint models

IBS Channel Network Conference, Rothamstead Research   July 2019
Curvilinear bivariate mixed model with random changepoint to compare times of change between cognitive markers in Alzheimer's disease

IBS Conference, Barcelona   July 2018
Testing the Existence of a Random Changepoint in a Mixed Model

Annual French Statistical Society Conference, Paris   May 2018
Testing the Existence of a Random Changepoint in a Mixed Model

Annual French Biometric Societies Conference, Bordeaux   Oct 2017
Testing the Existence of a Random Changepoint in a Mixed Model

WORKSHOPS AND SEMINARS

BPH Biostatistics seminar, Bordeaux   Apr 2023
Robustness to dropout: a comparison of linear mixed model and functional principal component analysis

LSHTM Medical Statistics team seminar, London   Jun 2021
Multiple imputation and propensity score matching

BPH Biostatistics seminar, Bordeaux   May 2017
Score test for the changepoint on a mixed model

ANR SMALA Research meeting, Bordeaux   Mar 2017
Inference in random changepoint models

SCIENTIFIC PUBLICATIONS

PREPRINTS

- **Ségalas C**, Helmer C, Genuer R, Proust-Lima C. Functional principal component analysis as an alternative to mixed-effect models for describing sparse repeated measures in presence of missing data. *arXiv preprint.*

PEER-REVIEWED

- Bouvier F, Peyrot E, Balendran A, **Ségalas C**, Roberts I, Petit F, Porcher R. Do machine learning methods lead to similar individualized treatment rules ? A comparison study on real data, *Statistics in Medicine*, 2024.

- Thurin N, Jové J, Lassalle R, Rouyer R, Lamarque S, Bosco-Levy P, **Ségalas C**, Schneeweiss S, Blin P, Droz-Perroteau C. Strong instrumental variables biased propensity scores in comparative effectiveness research: A case study in oncology, *Journal of Clinical Epidemiology*, 2023.

- **Ségalas C**, Leyrat C, Carpenter JR, Williamson E. Propensity score matching after multiple imputation when a confounder has missing data, *Statistics in Medicine*, 2023.

- **Ségalas C**, Leyrat C, Willamson E. Pulling Unmeasured Confounding Out by your Bootstraps: Too Good to be True?, *Journal of Statistical Research*, 2022.

- Mulot M, **Ségalas C**, Leyrat C, Besançon L. Re : Subramanian and Kumar. Vaccination rates and COVID-19 cases, *European Journal of Epidemiology*, 2021.

- Besançon L, Peiffer-Smadja N, **Ségalas C**, Jiang H, Masuzzo P, Smout C, Billy E, Deforet M, Leyrat C. Open science saves lives : Lessons from the COVID-19 pandemic, *BMC Medical Research Methodology*, 2020.

- **Ségalas C**, Helmer C, Jacqmin-Gadda H. A curvilinear bivariate random changepoint model to assess temporal order of markers *Statistical Methods in Medical Research*, 2020.

- Gosse P, **Ségalas C**, Rubin S, Boulestreau R, Jacqmin-Gadda H, Leffondre K, Combe C, Cremer A. Long term evolution of renal function in essential hypertensive patients with no baseline proteinuria, *Journal of Human Hypertension*, 2020.

- **Ségalas C**, Amieva H, Jacqmin-Gadda H. A hypothesis testing procedure for random Changepoint mixed models, *Statistics in Medicine*, 2019.

PROCEEDINGS

- **Segalas C**, Jacqmin-Gadda H. A semi-latent class model for estimating the time of differentiation of cognitive decline between cases and controls, *Proceedings of the 35th International Workshop on Statistical Modelling*, 2020.

GRANT & AWARDS

Daniel Schwartz PhD Award   2020
French Biometrics Society

PhD Grant   2016
Université de Bordeaux

SCIENTIFIC ANIMATION

- Animator of the Statistical bibliography seminar   Mar 2023 – Now
- Animator of the PhD book club   Sept 2018 – Jun 2019

TEACHING ACTIVITIES

COURSES

Université de Bordeaux   2023 – 2024

- MSc in Public Health Data Science
  Introduction to machine learning: CART and Random Forests (6h)

Université Paris-Cité   2022 – 2023

- MSc in Biotechnology
  Introduction to Statistical inference (3h)

London School of Hygiene and Tropical Medicine   2021 – 2022

- MSc in Health Data Science
  Linear and logistic regression (9h)

London School of Hygiene and Tropical Medicine   2020 – 2021

- MSc in Health Data Science
  Linear and logistic regression (9h)

Université de Bordeaux   2018 – 2019

- MSc in Epidemiology
  Introduction to R and RStudio (3h)
- MSc in Public Health
  Linear regression models (14h)
  Hypothesis testing (16h)
- MSc in Psychology
  Multidimensional data analysis (32h)

Université de Bordeaux   2017 – 2018

- BSc in Psychology
  Introduction to data analysis (24h)
- MSc in Psychology
  Multidimensional data analysis (8h)

SUPERVISION AND EVALUATION

- Co-supervision of several second year MSc students
- Supervision of first year MSc students research projects
- Co-supervision of a PhD student on a paper
- Academic supervisor of a second year MSc student
- Member of several juries for MSc students research communications