

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

2014 – 2016

Université de Bordeaux

BSc – Mathematics

2011 – 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 Conference, 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, Williamson 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
French Biometrics Society

2020

SCIENTIFIC ANIMATION

- Animator of the Statistical bibliography seminar
- Animator of the PhD book club

2023 – Now
2018 – 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