

CORENTIN SÉGALAS

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RESEARCH

Research Fellow in Statistics

Feb 2023 – Now

Université de Bordeaux & Bordeaux Population Health

- longitudinal data, sparse functional data, random survival forest, survival analysis, dynamic prediction.

Research Fellow in Statistics

Jan 2022 – Oct 2022

Université Paris-Cité

- 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

- 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

Supervised by Hélène Jacqmin-Gadda

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

MSc Research Thesis

Feb 2016 – June 2016

Université de Bordeaux & Institut de Mathématiques de Bordeaux

- stochastic algorithms, martingale theory, mixture models, central limit theorem.

EDUCATION

MSc in Statistics

2014 – 2016

Université de Bordeaux

BSc in Mathematics

2011 – 2014

Université de Bordeaux

TALKS

INVITED TALKS

Premedical team seminar, Montpellier

Sept 2024

Combining multiple imputation and propensity score matching in practice

Bordeaux Public Health Data Science Network Conference, Bordeaux

July 2023

Longitudinal data analysis with dropout: mixed models or functional principal component analysis?

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

- ISCB Conference, Thessaloniki** **July 2024**
Dynamic random survival forests using functional principal component analysis for the prediction of survival outcomes from time-varying predictors
- French Statistical Society Conference, Bordeaux** **June 2024**
Non parametric dynamic prediction of a risk of event from longitudinal predictors
- French Biometric Societies Conference, Toulouse** **Nov 2023**
Robustness to missing data: a comparison between linear mixed models and functional principal component analysis
- French Statistical Society Conference, Brussels** **July 2023**
Propensity score matching after multiple imputation when a confounder has missing data
- ISCB Conference, Lyon** **July 2021**
Multiple imputation in propensity score matching: obtaining correct confidence intervals
- IWSM Conference, Bilbao** **July 2020**
A semi-latent class model for estimating the time of differentiation of cognitive decline between cases and controls
- 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
- French Statistical Society Conference, Paris** **May 2018**
Testing the Existence of a Random Changepoint in a Mixed Model
- French Biometric Societies Conference, Bordeaux** **Oct 2017**
Testing the Existence of a Random Changepoint in a Mixed Model

WORKSHOPS & 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

PUBLICATIONS

PEER-REVIEWED

- **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. *Statistics in Medicine*, 2024.
- 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, Jovéé 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

- **Ségalas 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 <i>French Biometrics Society</i>	2020
PhD Grant <i>Université de Bordeaux</i>	2016

TEACHING

COURSES

Université de Bordeaux

- Fall 2024: MSc in Public Health Data Science, CART and Random Forests (6h)
- Fall 2023: MSc in Public Health Data Science, CART and Random Forests (6h)

Université Paris-Cité

- Spring 2023: MSc in Biotechnology, Introduction to Statistical inference (3h)

London School of Hygiene and Tropical Medicine

- Fall 2022: MSc in Health Data Science, Linear and logistic regression (9h)
- Fall 2021: MSc in Health Data Science, Linear and logistic regression (9h)

Université de Bordeaux

- Spring 2019: MSc in Public Health, Linear regression models (14h)
- Spring 2019: MSc in Public Health, Hypothesis testing (16h)
- Spring 2019: MSc in Psychology, Multidimensional data analysis (32h)
- Fall 2018: MSc in Epidemiology, Introduction to R and RStudio (3h)
- Spring 2018: BSc in Psychology, Introduction to data analysis (24h)
- Spring 2018: MSc in Psychology, Multidimensional data analysis (8h)

SUPERVISION

- Spring 2024: 2nd year MSc internship on nested case-control random changepoint models using splines.
- Spring 2024: 1st year MSc research project on functional principal component analysis.
- Spring 2018: 2nd year MSc internship on random changepoint models.

MISC

LAB ANIMATION

BPH Junior Researcher day (2024); BPH Statistics bibliographic seminar (Since 2023); BPH PhD Book club (2018 – 2019)

REVIEWING

Statistics in medicine; Statistical Methods in Medical Research; Biometrics

SOCIETIES MEMBERSHIP

French Statistical Society; French Biometrics Society (IBS local branch)