

# RAPHAËL JAUSLIN



## PERSONAL INFORMATION

<i>nationality</i>	Swiss
<i>date of birth</i>	2 <sup>nd</sup> June 1992
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## EDUCATION

### Ph.D Student

**2019-current**      Université de Neuchâtel

My research focuses on sampling theory. In particular, several methods allow finding a balanced sample over a spatial domain and in highly stratified populations.  
**Supervisor:** Prof. Yves TILLÉ

### Master of Science in applied mathematics

**2015-2018**      Ecole polytechnique fédérale de Lausanne

This program concentrates on learning advanced mathematical methods and applications of mathematics. The core subjects are analysis, applied probability and stochastic processes, statistics and data analysis, optimization and operations research, numerical analysis and scientific computing and financial mathematics.

**Thesis:** *From components to cells : an application of the survival signature to carcinogenesis model.*

**Abstract:** My master thesis investigates the potential of the survival signature to represent carcinogenesis model. It provides an introduction of the survival signature and presents some recent researches that have been pursued such as nonparametric predictive inference and integration of reparable components with Monte-carlo procedure. Then carcinogenesis model is presented, and some models are shown to coincide with the survival signature interpretation. Finally, a finite mixture model is used as example on mortality rate data of Swiss male lung cancer. Some patterns are analysed in survival function to enhance the potential of the survival signature.

**Supervisor:** Prof. Stephan MORGENTHALER

### Bachelor in mathematics

**2011-2015**      Ecole polytechnique fédérale de Lausanne

This degree focused on necessary mathematical background and important thinking ability.

## WORK EXPERIENCE

### Master internship

**Fev-Aug 2017**      PHILIP MORRIS PRODUCT S.A. R&D, Neuchâtel

Responsible for various statistical analyses performed in the context of preclinical studies. Development and programming of a flexible tool used to calibrate bioassays. Advisors: Dr Grégory VUILLAUME & Dr Athanasios KONDYLIIS

### Student job

**2015-2018**      ECOLE ROMANDE D'AROMATHÉRAPIE, Lausanne

Student management software implementation and Excel macro development for process improvement, about 1-2 days a week.

### Summer Jobs

**Jul-Aug 2014**  
**Jul-Sep 2013**      PHILIP MORRIS PRODUCT S.A. R&D, Onnens  
**Aug 2012**

Development of an Excel procedure to improve research, utilization of a genealogy software, various project for the R&D department.

## PUBLICATIONS

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- 2022 Eustache, E., Jauslin, R., Tillé, Y., Spatiotemporal sampling with spatial spreading and rotation of units in time, *Spatial Statistics*, 47, 100613
- 2022 Leuenberger, M., Eustache, E., Jauslin, R., Tillé, Y., Balancing a sample almost perfectly, *Statistics & Probability Letters*, 180, 109229
- 2021 Jauslin, R., Eustache, E., Tillé, Y., Enhanced cube implementation for highly stratified population, *Japanese Journal of Statistics and Data Science*, 4, 783–795
- 2020 Jauslin, R., Tillé, Y., Spatial Spread Sampling Using Weakly Associated Vectors, *Journal of Agricultural, Biological and Environmental Statistics*, 25(3), 431–451

## CONFERENCES

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- 6-9 June 2022 Jauslin, R. and Tillé, Y., Perugia, ITACOSM 2022 Italian Conference on Survey Methodology, Sequential Spatially Balanced Sample
- 6-8 Sep 2021 Jauslin, R. and Tillé, Y., Lugano, Swiss Statistics Meeting *Swiss Days of Official Statistics*, An Efficient Approach for Statistical Matching of Survey Data Through Calibration, Optimal Transport and Balanced Sampling
- 2-4 Dec 2020 Jauslin, R. and Tillé, Y., virtual event, uRos 2020, Spatial Spread Sampling Using Weakly Associated Vectors

## COMPUTER SKILLS

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- R statistical software* Package maintainer of R packages available on CRAN.
- Jauslin, R. and Tillé, Y. (2021). *WaveSampling: Weakly Associated Vectors (WAVE) Sampling*. R Foundation for Statistical Computing, Vienna, Austria. R package version 0.1.3.
- Jauslin, R., Eustache, E., Panahbehagh, B., and Tillé, Y. (2021). *StratifiedSampling: Different Methods for Stratified Sampling*. R Foundation for Statistical Computing, Vienna, Austria. R package version 0.3.0.
- C++* Incorporation of C++ code in R packages using `RcppArmadillo` and `Rcpp` to decrease computational cost of several functions.
- Project of object-oriented programming in my first Bachelor year at the EPFL.
- LaTeX* Good skills in scientific project redaction, particularly with the R package `knitr`.
- Matlab* Use of MATLAB in my numerics analysis courses.
- Python* Good knowledge.
- Microsoft Office* Common use of Excel and basic knowledge in VBA.

## OTHER INFORMATION

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- Languages*
- FRENCH · Mother tongue
- ENGLISH · Fluent
- GERMAN · Basic

- Interests*
- Windsurfing & Windfoiling – Generally on the Neuchâtel's lake when the wind is blowing.
- Running & Trail – Many participation at different competition.
- Cooking – A real pleasure to eat something cooked by myself.

