

# Katarzyna Reluga

## Education

- 9/2016–7/2020 **Ph.D. in Statistics**, *University of Geneva, Switzerland*.  
Supervisors: Prof. Stefan Sperlich, Prof. María-José Lombardía
- 9/2014–6/2016 **M.S. in Statistics**, *KU Leuven, Belgium*.  
Master thesis supervisors: Prof. Jan Beirlant, Prof. Goedele Dierckx
- 10/2011–6/2014 **B.S. in Quantitative Methods in Economics and Information Systems**, *Warsaw School of Economics, Poland*.  
Bachelor thesis supervisor: Prof. Marcin Owczarczuk
- 10/2011–6/2014 **B.A. in Modern Languages**, *University of Warsaw, Poland*.  
Bachelor thesis supervisor: Prof. Jolanta Dygul

## Academic Positions and Employment

- 6/2022–Present **Postdoctoral Visiting Scholar**, *University of California, Berkeley*.
- 9/2021–5/2022 **Postdoctoral Fellow**, *University of Toronto, Canada*.
- 9/2020–8/2021 **Research Associate**, *University of Cambridge, United Kingdom*.
- 9/2016–8/2020 **Teaching and Research Assistant**, *University of Geneva, Switzerland*.
- 3/2014–8/2014 **Account Payable Associate**, *Colgate-Palmolive Business Services, Warsaw, Poland*.
- 7/2013–9/2013 **Administrative Intern**, *Italian Language School for foreigners at the University of Palermo, Italy*.
- 9/2012 **Intern**, *Bank Pekao SA, Mass Market Media Department, Warsaw, Poland*.

## Research Interests

**Causal Inference, Machine Learning, Mixed and Multilevel Models, Resampling Techniques, Survey Statistics.**

- Estimation of heterogeneous treatment effects in complex survey setting
- Post-selection and simultaneous inference in mixed and multilevel models
- Small area estimation
- Theory and application of bootstrapping in mixed and multilevel models

## Research Articles

**Reluga, K.**, Lombardía, M., J., Sperlich, S. (2021), *Simultaneous Inference for Empirical Best Predictors with a Poverty Study in Small Areas*. *Journal of the American Statistical Association*. DOI: 10.1080/01621459.2021.1942014.

**Reluga, K.**, Lombardía, M., J., Sperlich, S. (2022), *Simultaneous inference for linear mixed model parameters with an application to small area estimation*. *International Statistical Review*. DOI:10.1111/insr.12519.

## Working Papers and Preprints

**Reluga, K.**, Claeskens, G. Sperlich, S. (submitted), *Post-selection inference for linear mixed model parameters using the conditional Akaike information criterion*. arXiv:2109.10975.

**Reluga, K.**, Sperlich, S. (submitted), *Simple bootstrap for linear mixed effects under model misspecification*. arXiv:2207.12455.

**Reluga, K.**, Ye, T., Zhao, Q. (submitted), *A unified analysis of regression adjustment in randomized experiments*. arXiv:2210.04360.

**Reluga, K.**, Kong, D., Ranjbar, S., Salvati N., (in preparation), *Machine learning methods for heterogeneous area-specific treatment effect estimation*.

**Reluga, K.**, Ranjbar, S., Salvati N., (in preparation), *Robust simultaneous inference for small area parameters*.

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## Grants and Awards

- 6/2020 **Postdoctoral Fellowship**, Early Postdoc.Mobility Fellowship from the Swiss National Science Foundation (SNSF) to carry out research at the University of Toronto and at the University of California, Berkeley (77,900 CHF).
- 12/2019 **Travel grant**, Grant for the academic stay at the University of A Coruña from Ernst et Lucie Schmidheiny Foundation (500 CHF).
- 6/2019 **Subside Tremplin**, Prize from the Equality & Diversity Department of the University of Geneva to support female researchers at the important stages of their career in Academia (28,000 CHF).
- 6/2019 **Travel grant**, Grant to co-finance conference related costs from the Swiss Academy of Humanities and Social Sciences (1,000 CHF).
- 6/2018 **Travel grant**, Grant to co-finance conference related costs from the Academic Society of Geneva (1,000 CHF).

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## Software

- postcAIC R package for post-selection inference for linear mixed models (author and maintainer)
- SimInFLME R package to construct individual and simultaneous confidence intervals for linear mixed effects (author and maintainer)

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## Talks and Presentations

- 07/2022 **Invited talk**, *Post-selection Inference for Linear Mixed Models*, ICSA Canada Chapter Symposium 2022, Banff, Canada.
- 5/2022 **Invited talk**, *Machine learning methods for heterogeneous area-specific treatment effect estimation*, SAE 2022: Small Area Estimation, Surveys and Data Science Conference, University of Maryland, College Park, U.S.A.
- 12/2021 **Contributed Talk**, *Post-selection inference for Linear Mixed Models*, CFE-CMStatistics 2021, King's College London, U.K., (online conference).
- 4/2020 **Job Talk**, *Simultaneous and post-selection inference for mixed parameters*, University of Cambridge, U.K., (Online).
- 2/2020 **Job Talk**, *Simultaneous and post-selection inference for mixed parameters*, Humboldt University of Berlin, Germany.
- 12/2019 **Contributed Talk**, *Simultaneous inference for EBP under GLMM*, CFE-CMStatistics 2019, King's College London, U.K.
- 8/2019 **Invited talk**, *Simultaneous inference for mixed parameters*, 62nd ISI World Statistical Congress (WSC 2019), Kuala Lumpur, Malaysia.
- 8/2019 **Contributed Talk**, *Simultaneous inference for EBP under GLMM*, Conference on current trends in survey statistics, A Satellite Conference to the 62nd ISI World Statistical Congress, National University of Singapore, Singapore.
- 5/2019 **Seminar Talk**, *Simultaneous inference for EBP under GLMM*, Statistical Seminar at the Research Center for Information and Communication Technologies, University of A Coruña, Spain.
- 8/2018 **Contributed Talk**, *Simultaneous inference for mixed parameters*, Swiss Statistical Meeting (SSS 2018), University of Zurich, Switzerland.

6/2018 **Contributed Talk**, *Simultaneous inference for mixed parameters*, Small Area Estimation and Other Topics of Current Interest in Surveys, Official Statistics and General Statistics Conference, East China Normal University, Shanghai, China.

## Academic Visits and Exchange Programs

1/2020 **Visiting Scholar**, University of A Coruña, Spain.  
10/2019–12/2019 **Visiting Scholar**, KU Leuven, Belgium.  
5/2019 **Visiting Scholar**, University of A Coruña, Spain.  
9/2015–2/2016 **Exchange Student**, Swiss-European Mobility Program, M.S. in Statistics, ETH Zurich, Switzerland.

## Teaching

2020 **Causal Inference**, Teaching assistant, University of Cambridge, U.K.  
2020 **Introduction to Statistics**, Teaching assistant, University of Geneva, Switzerland.  
2019 **Sampling Techniques**, Teaching assistant, University of Geneva, Switzerland.  
2018 **Preparatory School in Mathematics**, Teaching assistant, University of Geneva, Switzerland.  
2016–2018 **Numerical Optimization and Simulations**, Teaching assistant, University of Geneva, Switzerland.  
2018–2019 **Mathematics 1**, Teaching assistant, University of Geneva, Switzerland.  
2017–2018 **Mathematics 2**, Teaching assistant, University of Geneva, Switzerland.

## External and Internal Professional Activities

8/2018 **Thesis defence**, Member of a Master thesis defence jury, Student: Louis Johner, program: Master in Statistics, GSEM, University of Geneva, Supervisor: Prof Dietmar Maringer, University of Basel.  
8/2017 **Thesis defence**, Member of a Master thesis defence jury, Student: Ismail Mueller, program: Master in Econometrics, GSEM, University of Geneva, Supervisor: Prof Stefan Sperlich, University of Geneva.  
5/2022 **Session chair**, *Model-based Approach in Small Area Estimation and its Related Topic*, Session organised by Prof. Dr. Masayo Hirose at SAE 2022: Small Area Estimation, Surveys and Data Science Conference, University of Maryland, College Park, U.S.A.

## Academic Societies

Swiss Statistical Society, International Statistical Institute

## Referee service

BMC Medical Research Methodology, Journal of Multivariate Analysis

## Skills

Languages R, SAS, Matlab, Octave, LATEX, Python (basics), Git  
Communication English (CAE C1), French (DELFB2), Italian (C1), Polish (Native), Russian (A2)

## Relevant Courses

2/2019 **Classroom**, Winter School in Applied Probability and Statistics (CUSO), Les Diableret, Switzerland.  
9/2018, 9/2017 **Classroom**, Summer School in Applied Probability and Statistics (CUSO), Villars-sur-Ollon, Switzerland.  
9/2013 **Online**, *Mathematical Biostatistics Boot Camp 1*, Johns Hopkins Bloomberg School of Public Health.  
8/2013 **Online**, *Case-Based Introduction to Biostatistics*, Johns Hopkins Bloomberg School of Public Health.