

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
- 9/2015–2/2016 **Exchange Student**, *ETH Zurich, Switzerland*.
Swiss-European Mobility Program, M.S. in Statistics
- 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., *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*.

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).

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)

Talks and Presentations

- 11/2022 **Seminar Talk**, *Small area estimation and causal inference – a seamless alliance?*, Causal research group seminar, University of California, Berkeley, U.S.A.
- 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

- 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.

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

American Statistical Association (ASA), Institute of Mathematical Statistics (IMS), International Statistical Institute (ISI), Swiss Statistical Society (SSS)

Referee service

BMC Medical Research Methodology, Journal of Applied Statistics, Journal of Multivariate Analysis

Skills

- Languages R, SAS, Matlab, Octave, LATEX, Python (basics)
- Utilities 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 **Classroom**, Summer School in Applied Probability and Statistics (CUSO), Villars-sur-Ollon, Switzerland.
- 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.