

Katarzyna Reluga

Curriculum Vitae

Fry Building, School of Mathematics
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Education

- 9/2016–7/2020 **Ph.D. in Statistics**, *University of Geneva, Switzerland*.
Advisors Prof. Stefan Sperlich, Prof. María José Lombardía Cortiña
- 9/2014–6/2016 **M.S. in Statistics**, *KU Leuven, Belgium*.
- 9/2015–2/2016 **Exchange Student**, *Swiss-European Mobility Program, ETH Zurich, Switzerland*.
- 10/2011–6/2014 **B.S. in Quantitative Methods in Economics and Information Systems**, *Warsaw School of Economics, Poland*.
- 10/2011–6/2014 **B.A. in Modern Languages**, *University of 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. (2023), *Simultaneous inference for empirical best predictors with a poverty study in small areas*. *Journal of the American Statistical Association*. 118(541):583–59, 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. (2021), *Post-selection inference for linear mixed model parameters using the conditional Akaike information criterion*. arXiv:2109.10975.

Reluga, K., Lombardía, M., J., Sperlich, S. (1st review, *Journal of Computational and Graphical Statistics*), *Simple bootstrap for linear mixed effects under model misspecification*. arXiv:2207.12455.

Reluga, K., Ye, T., Zhao, Q. (2nd review, *Electronic Journal of Statistics*), *A unified analysis of regression adjustment in randomized experiments*. arXiv:2210.04360.

Reluga, K., Kong, D., Ranjbar, S., Salvati N., van der Laan, M. (in preparation), *The impact of job stability on monetary poverty in Italy: causal small area estimation*.

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

Reluga, K., van der Laan, M. (in preparation), *Targeted small area estimation*.

Phillips, R.V., Mertens, A., Kvist, K., Petersen, M., van der Laan, M., **Reluga, K.** (in preparation) *Federated targeted learning with applications to causal inference*.

Academic Appointments and Employment

8/2023–Present **Lecturer in Statistical Science**, *University of Bristol, United Kingdom*.

6/2022–7/2023 **Postdoctoral Visiting Scholar**, *University of California, Berkeley*.

Advisor Prof. Mark van der Laan, School of Public Health

9/2021–5/2022 **Postdoctoral Fellow**, *University of Toronto, Canada*.

Advisor Prof. Dehan Kong, Department of Statistical Sciences

9/2020–8/2021 **Research Associate**, *University of Cambridge, United Kingdom*.

Advisor Prof. Qingyuan Zhao, Department of Pure Mathematics and Mathematical Statistics

9/2016–8/2020 **Teaching and Research Assistant**, *University of Geneva, Switzerland*.

Industry Experience

3/2014–8/2014 **Accounts 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*.

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

causalSAE R package to construct estimators for heterogeneous average treatment effects at the level of subpopulations in the small area setting.(author and maintainer).

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).

Selected Talks

- 7/2023 **Invited Talk**, *Alliance of small area estimation and causal inference: impact of job stability on relative poverty in Italy*, PolMeth XL Conference 2023, Stanford, U.S.A.
- 1/2023 **Seminar Talk**, *Revitalizing survey statistics - contributions to simultaneous, post-selection and causal inference for target parameters and beyond*, Department of Statistics, University of Illinois Urbana-Champaign, 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.
- 2/2020 **Seminar 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.
- 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.
- 10–12/2019 **Visiting Scholar**, KU Leuven, Belgium.
- 5/2019 **Visiting Scholar**, University of A Coruña, Spain.

Teaching

- 2023 **Linear and Generalised Linear Models**, Lecturer, University of Bristol, U.K.
- 2023 **Probability and Statistics**, Teaching assistant, University of Bristol, U.K.
- 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.

Service and Advocacy

- 10/2023-Present **EDI Committee Member**, School of Mathematics, University of Bristol.
- 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 topics*, Session organized by Prof. Dr. Masayo Hirose at SAE 2022: Small Area Estimation, Surveys and Data Science Conference, University of Maryland, College Park, U.S.A.
- 10-12/2014 **Student Member of Program Committee**, *Master in Statistics*, KU Leuven, Belgium.

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, Biometrics, TEST

Skills

- Languages LATEX, Matlab, Octave, Python, R, SAS, SQL
- Utilities Git, Linux High Performance Computing (HPC)
- Communication English (C1/C2), French (DELFI B2), German (A2), Italian (C1), Polish (Native), Russian (A2)

Relevant Courses and Workshops

- 6/2023 **Classroom**, Experimentation and Causal Inference in the Tech Sector Workshop, Stanford, U.S.A.
- 1/2022 **Online**, EDI workshop for postdocs, University of Toronto, Canada.
- 1/2022 **Online**, Unconscious Bias in academia workshop, University of Toronto, Canada.
- 2/2019 **Classroom**, Winter School in Applied Probability and Statistics (CUSO), Les Diablerets, 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.