

Claudia Di Caterina

CURRICULUM VITAE

Contact Information

Free University of Bozen-Bolzano
Faculty of Economics and Management
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Current Position

Since March 2020

Assistant Professor (*Ricercatore a Tempo Determinato di tipo a*)

Free University of Bozen-Bolzano, Faculty of Economics and Management.

Research interests

- Likelihood and pseudo-likelihood inference
- Likelihood asymptotics
- Statistical treatment of nuisance parameters
- Statistical computing
- Bias reduction techniques
- Missing data analysis

Positions held

January 2019 – January 2020

Research Assistant (*assistente di ricerca*)

Free University of Bozen-Bolzano, Faculty of Economics and Management.

Research project title: *Efficient Measurement of Uncertainty in the Selection of Statistical Models via Resampling (REASSURE)*

Supervisor: Prof. Davide Ferrari

January 2017 – December 2018

Postdoctoral Fellow (*assegnista di ricerca*)

University of Padova, Department of Statistical Sciences.

Research project title: *Approximate Likelihood Inference with High-dimensional Models*

Supervisor: Prof. Nicola Sartori

Education

January 2014 – March 2017

PhD in Statistical Sciences

University of Padova, Department of Statistical Sciences.
Thesis title: *Reducing the Impact of Bias in Likelihood Inference for Prominent Model Settings*
Supervisor: Prof. Nicola Sartori
Co-supervisor: Dr. Ioannis Kosmidis

October 2011 – July 2013

Master degree (laurea magistrale) in Statistical Sciences

University of Padova, Department of Statistical Sciences.
Title of dissertation: *Modified Profile Likelihood in Dynamic Panel Data Models*
Supervisor: Prof. Nicola Sartori
Final mark: 110/110 *cum laude*

October 2008 – July 2011

Bachelor degree (laurea triennale) in Statistics, Economics and Finance

University of Padova, Faculty of Statistical Sciences.
Title of dissertation: *Bootstrap for Time Series*
Supervisor: Prof. Luisa Bisaglia
Final mark: 110/110 *cum laude*

Visiting periods

April 2019 – June 2019

Department of Statistical Sciences, University of Toronto
Toronto, Canada.
Supervisor: Prof. Nancy Reid

September 2015 – September 2016

Department of Statistical Science, University College
London, United Kingdom.
Supervisor: Dr. Ioannis Kosmidis

January 2011 – May 2011

Tilburg University
Tilburg, The Netherlands.
Erasmus Student Exchange Program.

Publications

Papers in journals

Di Caterina, C., Cortese, G. and Sartori, N. (2019). Monte Carlo modified profile likelihood in models for clustered data. *Electronic Journal of Statistics* **13**, 432–464.

Di Caterina, C. and Kosmidis, I. (2019). Location-adjusted Wald statistics for scalar parameters. *Computational Statistics and Data Analysis* **138**, 126–142.

Articles in proceedings

Di Caterina, C., Ferrari, D. and La Vecchia, D. (2019). Inference on high-dimensional graphical models via pairwise likelihood truncation. *Proceedings of the 21st European Young Statisticians Meeting (Milošević, B., and Obradović, M., editors)*.

Di Caterina, C. and Sartori, N. (2018). Modified profile likelihood in models for clustered data with missing values. *Book of Short Papers SIS 2018 (Abruzzo, A., Piacentino, D., Chiodi, M. and Brentari, E., editors)*. ISBN: 9788891910233.

Di Caterina, C., Cortese, G. and Sartori, N. (2017). Monte Carlo modified profile likelihood in survival models for clustered censored data. *Proceedings of the 32nd International Workshop on Statistical Modelling (Grzegorzcyk, M. and Ceoldo, G., editors)* **2**, 193–196.

Di Caterina, C. and Kosmidis, I. (2016). Bias corrected z -tests for regression models. *Proceedings of the 31st International Workshop on Statistical Modelling (Dupuy, J.-F. and Josse, J., editors)* **1**, 87–92.

Abstracts in proceedings

Di Caterina, C., Ferrari, D. and La Vecchia, D. (2019). Fast and efficient selection of high-dimensional graphical models through sparse combination of pairwise scores. *Book of Abstracts of the 21st European Young Statisticians Meeting (EYSM 2019)*, Belgrade, Serbia, July 29–August 2.

Di Caterina, C., Cortese, G. and Sartori, N. (2018). Monte Carlo modified profile likelihood in survival models for clustered censored data. *Book of Abstracts of the 11th International Conference of the ERCIM Working Group on Computational and Methodological Statistics (CMStatistics 2018)*, Pisa, Italy, December 14–16.

Di Caterina, C. and Kosmidis, I. (2018). Location-adjusted Wald statistic for scalar parameters. *RSS International Conference Abstracts Booklet*, Cardiff, Wales, September 3–6.

Di Caterina, C. and Sartori, N. (2016). Modified profile likelihood in complex models with many nuisance parameters. *Book of Abstracts of the 22nd International Conference on Computational Statistics (COMPSTAT 2016)*, Oviedo, Spain, August 23–26.

Bellio, R., Di Caterina, C. and Sartori, N. (2013). Monte Carlo modified likelihood for panel data models. *Book of Abstracts of the 6th International Conference of the ERCIM Working Group on Computational and Methodological Statistics (CMStatistics 2013)*, London, UK, December 14–16.

PhD Thesis

Di Caterina, C. (2017). Reducing the impact of bias in likelihood inference for prominent model settings (<http://paduaresearch.cab.unipd.it/10305/>). University of Padova, Department of Statistical Sciences.

Working papers

Di Caterina, C. and Ferrari, D. Covariance selection via pairwise likelihood truncation. *In preparation*.

Roner, C., Di Caterina, C. and Ferrari, D. A composite likelihood approach for zero inflated and serially correlated interval data with an application to cybersecurity breaches. *In preparation*.

Di Caterina, C., Reid, N. and Sartori, N. Directional tests for Gaussian graphical models. *In preparation*.

Di Caterina, C. and Sartori, N. Modified profile likelihood for missing clustered data. *In preparation*.

Software

- **waldi**: R package providing methods to compute location-adjusted Wald statistics and confidence intervals for popular model classes (joint with I. Kosmidis). Available on GitHub (<https://github.com/ikosmidis/waldi>).
- **panelMPL**: new version of the R package for Monte Carlo modified profile likelihood estimation in fixed-effects models for clustered data. *Under development*. Previous version, authored by R. Bellio and N. Sartori, available at <http://ruggerobellio.weebly.com/software.html>.

Conference presentations

Invited talks

Di Caterina, C. and Kosmidis, I. (2020). Location-adjusted Wald statistics for scalar parameters. Invited talk at the *ISM 2020 Workshop*, Sestri Levante (GE), Italy, January 27–28.

Di Caterina, C., Ferrari, D., and La Vecchia, D. (2019). Sparse covariance matrix estimation via truncated pairwise likelihood. Invited talk at the *21st European Young Statisticians Meeting (EYSM 2019)*, Belgrade, Serbia, July 29–August 2.

Di Caterina, C. and Kosmidis, I. (2019). Location-adjusted Wald statistics for scalar parameters. Invited talk at the *PRIN 2015 Intermediate Workshop*, Padova, Italy, February 19.

Di Caterina, C., Cortese, G., and Sartori, N. (2018). Monte Carlo modified profile likelihood in survival models for clustered censored data. Invited talk at the *11th International Conference of the ERCIM Working Group on Computational and Methodological Statistics (CMStatistics 2018)*, Pisa, Italy, December 14–16.

Di Caterina, C. and Kosmidis, I. (2017). Location-adjusted Wald statistic for scalar parameters. Invited talk at the *5th StaTalk Workshop*, Padova, Italy, November 17.

Contributed talks

Di Caterina, C. and Kosmidis, I. (2018). Location-adjusted Wald statistics for scalar parameters. Talk at the *International Conference of the Royal Statistical Society*, Cardiff, Wales, September 3–6.

Di Caterina, C. and Sartori, N. (2018). Modified profile likelihood in models for clustered data with missing values. Talk at the *49th Scientific Meeting of the Italian Statistical Society*, Palermo, Italy, June 20–22.

Di Caterina, C. and Kosmidis, I. (2016). Adjusted z -tests for regression models. Talk at the *31st International Workshop on Statistical Modelling*, Rennes, France, July 4–8.

Posters

Di Caterina, C., Cortese, G. and Sartori, N. (2017). Monte Carlo modified profile likelihood in survival models for clustered censored data. *32nd International Workshop on Statistical Modelling*, Groningen, The Netherlands, July 3–7.

Di Caterina, C. and Sartori, N. (2016). Monte Carlo modified profile likelihood for panel data models. *22nd International Conference on Computational Statistics (COMPSTAT 2016)*, Oviedo, Spain, August 23–26.

Invited seminars

Reducing the Impact of Bias in Likelihood Inference. University of Trieste, Department of Economic, Business, Mathematical and Statistical Sciences “Bruno de Finetti” (18/05/2017).

Research grants

2017–2019: Member of the national project supported by the Italian Ministry of Instruction, University and Research (MIUR) *Likelihood-free methods of inference.* National Principal Investigator: Prof. B. Liseo. Padova Unit Principal Investigator: Prof. L. Ventura.

2016–2018: Member of the project supported by the University of Padova *Advances in likelihood-based inference in Biostatistics with application to measurement error problems and meta-analysis.* Principal Investigator: Prof. A. Guolo.

2014–2016: Member of the project supported by the University of Padova *Neo-Fisherian and Bayesian inference for intractable likelihoods: modern approaches with application in Life Sciences.* Principal Investigator: Prof. N. Sartori.

Teaching experience

October 2019 – January 2020

Teaching assistant in the courses of:

- *Statistics* (18 hours) in the Bachelor degree of Economics and Management. University of Bozen, Faculty of Economics and Management.
- *Statistics for SES* (24 hours) in the Bachelor degree of Economics and Social Sciences. University of Bozen, Faculty of Economics and Management.
- *Applied Statistics* (10 hours) in the Master degree of Environmental Management of Mountain Areas. University of Bozen, Faculty of Science and Technology.
- *Statistics for the Public Sector, M-2 Economic Statistics* (6 hours) in the Master degree of Public Policies and Administration. University of Bozen, Faculty of Economics and Management.

March 2018 – May 2018

Teaching assistant (26 hours) in the Master degree course of *Advanced Statistics.*

University of Padova, Department of Statistical Sciences.

November 2017 – January 2018

Teaching assistant (21 hours) in the Master degree course of *Applied Statistics.*

University of Padova, Department of Biology.

March 2017 – May 2017

Teaching assistant (12 hours) in the Master degree course of *Advanced Statistics.*

University of Padova, Department of Statistical Sciences.

October 2012 – October 2013

Tutor.

Exercises and short lectures for undergraduate students.

University of Padova, Department of Statistical Sciences.

Supervision of students

Since December 2019

Co-supervisor of the PhD student Cristian Roner, PhD in Management and Economics, Free University of Bozen-Bolzano.

Organization of scientific events

Since February 2020

Member of the scientific and organizing committee for the workshop *Learning Tools and Applied Quantitative Methods for Decision Making* (temporary title). Free University of Bozen-Bolzano, Faculty of Economics and Management, September 14–16, 2020.

October 2017 – November 2017

Member of the organizing committee for the *5th StaTalk Workshop*. University of Padova, Department of Statistical Sciences, November 17, 2017.

Computer skills

- Programming Languages: R, C (basic), Java (basic).
- Scripting Languages: PHP (basic).
- Databases: SQL (basic).
- OS environments: Mac OS X, Linux, Windows.
- Packages: L^AT_EX, MS Office, OpenOffice, Stata, SPSS, Gretl.

Language skills

Italian: native; English: fluent; French: moderate; Spanish: moderate.