

GIORGIA ZACCARIA

PERSONAL DATA

✉ giorgia.zaccaria@unimib.it ◇ giorgia.zaccaria@unitelmasapienza.it
🌐 [Personal Page](#) ◇ [Institutional Page](#) ◇ [Google Scholar](#) ◇ [Research Gate](#) ◇ [ORCID](#)
◇ [Sapienza University of Rome](#) ◇ [LinkedIn](#)

EMPLOYMENT

Postdoctoral Research Fellow

October 2022 – Present

University of Milano-Bicocca, Rome, Italy
Department of Statistics and Quantitative Methods
Supervisor: Prof. Francesca Greselin

Research Fellow

July 2021 – June 2022

University of Rome Unitelma Sapienza, Rome, Italy
Department of Law and Economics
Supervisor: Prof. Pasquale Sarnacchiaro

EDUCATION

Ph.D. in Methodological Statistics

November 2018 – February 2022

University of Rome La Sapienza, Rome, Italy
Department of Statistical Sciences

Final evaluation: Excellent

Thesis title: *Ultrametric models for hierarchical dimensionality reduction*

Supervisor: Prof. Maurizio Vichi

M.Sc. in Statistical and Decision Sciences

September 2016 – October 2018

Curriculum: European Master in Official Statistics (EMOS)

Final score: 110/110 cum laude

University of Rome La Sapienza, Rome, Italy

Department of Statistical Sciences

Internship

July 2018

Alleanza per lo Sviluppo Sostenibile (ASviS), Rome, Italy

B.Sc. in Statistics, Economics and Society

September 2013 – October 2016

University of Rome La Sapienza, Rome, Italy

Final score: 110/110 cum laude

Department of Statistical Sciences

High School Diploma in Scientific Studies

September 2008 – July 2013

Liceo Scientifico Statale Aristotele, Rome, Italy

Final score: 100/100

Bilingual Diploma: English and French.

RESEARCH VISITS

Tilburg University, Tilburg, The Netherlands

November 2021 – January 2022

Department of Methodology and Statistics

Supervisor: Prof. Jeroen K. Vermunt

RESEARCH INTERESTS

Ultrametric Models

Model-Based Clustering

Robust statistics

Dimensionality Reduction

Hierarchical Models

Latent Variable Models

AWARDS, GRANTS & SCHOLARSHIP

Research Grant for Junior Researcher, "Avvio alla ricerca"

October 2020

University of Rome La Sapienza, Rome, Italy

Principal Investigator

Project title: *Hierarchical latent variable models for studying multidimensional phenomena in heterogeneous populations*

Research Grant for Medium Projects

October 2019

University of Rome La Sapienza, Rome, Italy

Investigator (Principal Investigator: Prof. Donatella Vicari)

Project title: *Models, methods and classification of transition data: analysis of the students mobility among degree courses of Italian universities*

Excellent Graduate Award

May 2019

Fondazione Roma Sapienza, Rome, Italy

Excellent Graduate of the Faculty of Information Engineering, Computer Science and Statistics, a.y. 2017/2018

Scholarship

November 2018

University of Rome La Sapienza, Rome, Italy

Ph.D. School of Statistical Sciences

Three years of Ph.D. scholarship

PUBLICATIONS

REFERRED JOURNAL ARTICLES

4. Cavicchia, C., Sarnacchiaro, P., Vichi, M., **Zaccaria, G.** (2023+) A model-based ultrametric composite indicator for studying waste management in Italian municipalities. *Computational Statistics*, doi: 10.1007/s00180-023-01333-9 ([link](#)).
3. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2022) Hierarchical Disjoint Principal Component Analysis. *AStA Advances in Statistical Analysis*, doi: 10.1007/s10182-022-00458-4 ([link](#)).
2. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2022) Gaussian mixture model with an extended ultrametric covariance structure. *Advances in Data Analysis and Classification*, 16(2), 399-427 ([link](#)).
1. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2020) The ultrametric correlation matrix for modelling hierarchical latent concepts. *Advances in Data Analysis and Classification*, 14(4), 837-853 ([link](#)).

ARTICLES EDITED IN VOLUMES AND PH.D. THESIS

3. Mingione, M., Vichi, M., **Zaccaria, G.** (2022) Complex Dimensionality Reduction: Ultrametric Models for Mixed-Type Data. In: L.A. Garcia-Escudero, A. Gordaliza, A. Mayo, M. Asunción Lubiano Gomez, M. Angeles Gil, P. Grzegorzewski, O. Hryniewicz (Eds.) *Building Bridges between Soft and Statistical Methodologies for Data Science. SMPS 2022. Advances in Intelligent Systems and Computing*, vol 1433. Springer, Cham ([link](#)).
2. **Zaccaria, G.** (2022) Ultrametric models for hierarchical dimensionality reduction. *Ph.D. thesis, XXXIV cycle* ([link](#)).
1. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2020) Exploring hierarchical concepts: theoretical and application comparisons. In: T. Imaizumi, A. Nakayama, S. Yokoyama, S. (Eds.). *Advanced Studies in Behaviormetrics and Data Science. Behaviormetrics: Quantitative Approaches to Human Behavior*, vol. 5 (pp. 315-328). Springer, Singapore ([link](#)).

REFERRED CONFERENCE PROCEEDINGS

9. **Zaccaria, G.**, Sarnacchiaro, P. (2022) An ultrametric model for building a composite indicator system to study climate change in European countries. In: A. Balzanella, M. Bini, C. Cavicchia, R. Verde. (Eds.). *Book of Short Papers SIS 2022* (pp. 970-974). Pearson. ISBN: 978-88-9193-231-0.
8. Cavicchia, C., Sarnacchiaro, P., Vichi, M., **Zaccaria, G.** (2022) An ultrametric model to build a Composite Indicators system. In: R. Lombardo, I. Camminatiello, V. Simonacci (Eds.). *Book of Short Papers, 10th International Conference IES 2022 Innovation & Society 5.0: Statistical and Economic Methodologies for Quality Assessment, Department of Economics, University of Campania L. Vanvitelli, January 27th - 28th 2022* (pp. 208-211). Sesto San Giovanni: PKE - Professional Knowledge Empowerment s.r.l. ISBN: 978-88-94593-35-8.
7. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2021) A parsimonious parameterization of a nonnegative correlation matrix. In: S. Ingrassia, A. Punzo, R. Rocci (Eds.). *MBC2 2020 Book of Short Papers of the 5th International Workshop on Models and Learning for Clustering and Classification, Catania* (pp. 21-26). Milano: Ledizioni. ISBN: 978-88-5526-539-3.
6. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2021) Model-based clustering with parsimonious covariance structure. In: G. C. Porzio, C. Rampichini, C. Bocci (Eds.). *CLADAG 2021 Book of Abstracts and Short Papers. 13th Scientific Meeting of the Classification and Data Analysis Group, Firenze, September 9-11, 2021* (pp. 296-299). Firenze: Firenze University Press. ISBN: 978-88-5518-340-6.
5. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2021) The ultrametric covariance model for modelling teachers' job satisfaction. In: C. Perna, N. Salvati, F. Schirripa Spagnolo (Eds.). *Book of Short Papers SIS 2021* (pp. 1319-1324). Pearson. ISBN: 978-88-9192-736-1.
4. **Zaccaria, G.**, Vichi, M. (2020) Exploring drug consumption via an ultrametric correlation matrix. In: A. Pollice, N. Salvati, F. Schirripa Spagnolo (Eds.). *Book of Short Papers SIS 2020* (pp. 372-377). Pearson. ISBN: 978-88-9191-077-6.
3. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2019) Dimensionality reduction via hierarchical factorial structure. In G. C. Porzio, F. Greselin, S. Balzano (Eds.). *Book of Short Papers, CLADAG 2019, 11-13 September 2019, Cassino* (pp. 116-119). Cassino: Centro Editoriale di Ateneo Università di Cassino e del Lazio Meridionale. ISBN: 978-88-8317-108-6.
2. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2019) A new hierarchical model-based composite indicator on climate change. In M. Bini, P. Amenta, A. D'Ambra, I. Camminatiello (Eds.). *Statistical Methods for Service Quality Evaluation, Book of Short Papers of IES 2019 in Roma, Italia, 4-5 July* (pp. 346-349). Cuzzolin. ISBN: 978-88-86638-65-4.
1. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2019) Hierarchical Clustering and Dimensionality Reduction for Big Data. In G. Arbia, S. Peluso, A. Pini, G. Rivellini (Eds.). *Smart Statistics for Smart Applications, Book of Short Papers SIS 2019* (pp. 173-180). Pearson. ISBN: 978-88-9191-510-8.

PRESENTATIONS AND SEMINARS

INVITED PRESENTATIONS

CMStatistics 2023

December 2023

16th International Conference of the ERCIM WG on Computational and Methodological Statistics
HTW Berlin, University of Applied Sciences, Berlin, Germany

CLADAG 2023

September 2023

14th Scientific Meeting of the CLAssification and Data Analysis Group of SIS
University of Salerno, Salerno, Italy

CMStatistics 2022

December 2022

15th International Conference of the ERCIM WG on Computational and Methodological Statistics

King's College London, London, United Kingdom

ECDA 2022

September 2022

European Conference on Data Analysis

University of Naples, Naples, Italy

Colloquia Department Methodology and Statistics

December 2021

Tilburg University, Tilburg, The Netherlands

CONTRIBUTED PRESENTATIONS

CESS 2022

October 2022

Conference of the European Statistics Stakeholders

Sapienza University of Rome, Rome, Italy

IFCS 2022

July 2022

17th Conference of the International Federation of Classification Societies

University of Porto, Porto, Portugal

SIS 2022

June 2022

51st Scientific Meeting of the Italian Statistical Society

University of Campania Luigi Vanvitelli, Caserta, Italy

IES 2022

January 2022

Innovation & Society 5.0: Statistical and Economic Methodologies for Quality Assessment

University of Campania Luigi Vanvitelli, Capua, Italy

8th Annual Workshop of the Ph.D. School in Statistical Sciences

July 2021

University of Rome La Sapienza, Rome, Italy

DSSV-ECDA 2021

July 2021

Data Science, Statistics & Visualisation and the European Conference on Data Analysis

Erasmus University Rotterdam, Rotterdam, The Netherlands (Virtual)

SIS 2021

June 2021

50th Scientific Meeting of the Italian Statistical Society

University of Pisa, Pisa, Italy (Virtual)

7th Annual Workshop of the Ph.D. School in Statistical Sciences

February 2020

University of Rome La Sapienza, Rome, Italy

IFCS 2019

August 2019

16th Conference of the International Federation of Classification Societies

Thessaloniki, Greece

IES 2019

July 2019

Statistical evaluation systems at 360°: techniques, technologies and new frontiers

European University of Rome, Rome, Italy

6th Annual Workshop of the Ph.D. School in Statistical Sciences

June 2019

University of Rome La Sapienza, Rome, Italy

ECDA 2019

March 2019

European Conference on Data Analysis

University of Bayreuth, Bayreuth, Germany

Statistics Beyond 2020: challenges and risks

October 2017

European Statistics Day 2017, ESAC

Lisbon, Portugal

Panel Member as European Master in Official Statistics (EMOS) Student

TEACHING

Adjunct Lecturer

October 2022 – Present

Department of Psychics, University of Milano-Bicocca, Milan, Italy

Advanced Foundations of Statistics for AI (Master, English)

Student Tutor	<i>October 2022 – Present</i>
Department of Psychics, University of Milano-Bicocca, Milan, Italy Advanced Foundations of Statistics for AI (Master, English)	
Lecturer	<i>March 2022 – March 2022</i>
Istituto Nazionale per l'Analisi delle Politiche Pubbliche (INAPP), Rome, Italy Principal Component Analysis with R (Public Administration Training Course, Italian)	
Adjunct Lecturer	<i>February 2022 – Present</i>
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy Regression Models (II Level Master Course, Italian)	
Adjunct Lecturer	<i>February 2022 – October 2022</i>
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy Statistical Models for Social and Economic Analyses (II Level Master Course, Italian)	
Teaching Assistant	<i>February 2022 – September 2022</i>
Department of Economics and Finance, LUISS Guido Carli, Rome Italy Statistics, Prof. Marco Perone Pacifico (Bachelor, English)	
Adjunct Lecturer	<i>November 2021 – September 2022</i>
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy Basic Statistics and Mathematics (Master, English)	
Teaching Assistant	<i>March 2021 – July 2022</i>
Department of Medicine and Pharmacy, University of Rome La Sapienza, Rome Italy Medical Statistics, Prof. Maurizio Vichi (Master, Italian)	
Student Tutor	<i>January 2021 – Present</i>
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy Statistics and Mathematics (Bachelor and Master, Italian and English)	
Subject Expert	<i>October 2020 – October 2022</i>
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy Statistics and Mathematics	
Teaching Assistant	<i>March 2020 – September 2020</i>
Department of Political Sciences, University of Roma Tre, Rome Italy Statistics, Dr. Domenico Cucina (Bachelor, Italian)	
Teaching Assistant	<i>September 2019 – June 2022</i>
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy Advances in Data Analysis and Statistical Modelling, Prof. Maurizio Vichi (Master, English)	
Teaching Assistant	<i>September 2019 – June 2022</i>
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy Multivariate Statistics, Prof. Maurizio Vichi (Bachelor, Italian)	
Teaching Assistant	<i>September 2019 – December 2019</i>
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy Statistics, Prof. Maria Brigida Ferraro, Prof. Stefania Gubbiotti, Prof. Valeria Sambucini (Bachelor, Italian)	
Teaching Assistant	<i>March 2019 – July 2022</i>
Department of Medicine and Pharmacy, University of Rome La Sapienza, Rome Italy Statistics for Research and Technology, Prof. Maurizio Vichi (Master, Italian)	
Teaching Assistant	<i>February 2019 – September 2019</i>
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy Statistical Inference, Prof. Fulvio De Santis (Bachelor, Italian)	

ACADEMIC SERVICES

Member of the national board of y-SIS (2023-2025)
 Young group of the Italian Statistical Society ([link](#))

Editor of the Springer volume "High-quality and Timely Statistics - New Methods and Applications"

Springer book series for the CESS 2022 conference ([link](#))

Referee

Advances in Data Analysis and Classification (ADAC), SN Business & Economics (SNBE), Metron, Computational Statistics (COST), Annals of Operations Research (ANOR), Book of Short Papers SIS 2022.

Organizer and chair of the y-SIS Invited Session of CMStatistics 2023

16th International Conference of the ERCIM WG on Computational and Methodological Statistics ([link](#))

December 16-18, 2023, Berlin, Germany

Chair of the Invited Session "Advances in Dimensionality Reduction" of CMStatistics 2022

15th International Conference of the ERCIM WG on Computational and Methodological Statistics ([link](#))

December 17-19, 2022, London, United Kingdom

Member of the Local Organizing Committee of CESS 2022

Conference of European Statistics Stakeholders 2022 ([link](#))

October 20-21, 2022, Rome, Italy

Chair of the y-SIS Invited Session "Advances in Dimensionality Reduction" of ECDA 2022

European Conference on Data Analysis ([link](#))

September 14-16, 2022, Naples, Italy

Organizer and chair of the y-SIS Solicited Session "Advances in Clustering" of SIS 2022

51st Scientific Meeting of the Italian Statistical Society ([link](#))

June 22-24, 2022, Caserta, Italy

Organizer of the 8th Annual Workshop of the Ph.D. School in Statistical Sciences

June 2021, University of Rome La Sapienza, Rome, Italy

SOCIETY MEMBERSHIPS

SIS, y-SIS and CLADAG-SIS Member

July 2019 – Present

Member of the Italian Statistical Society (Società Italiana di Statistica, SIS), Young SIS and CLAssification and Data Analysis Group (CLADAG)

IAOS Member

January 2018 – December 2018

Member of the International Statistical Society

LANGUAGES

Italian	Mother tongue
English	Fluent
French	Good

COMPUTER SKILLS

Languages	MATLAB, R, R Studio, SAS, SAS Enterprise Miner 14, SPSS, LaTeX
Software	Microsoft Office
Certifications	SAS Predictive Modeler Using SAS Enterprise Miner 14 (October 8, 2018)

OTHER EXPERIENCES

IELTS Invigilator

December 2015 – March 2019

British Council

Rome, Italy

INCREASE Delegate

June 2012

XII International Human Right Council, OLMUN

Oldenburg, Germany

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del D.P.R. 445/2000.

Milan, March 2nd, 2023