GIORGIA ZACCARIA

PERSONAL DATA

Nationality   Italian

✉   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, Milan, 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   Final evaluation: Excellent
Department of Statistical Sciences
Thesis title: *Ultrametric models for hierarchical dimensionality reduction*
Supervisor: Prof. Maurizio Vichi
M.Sc. in Statistical and Decision Sciences   *November 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
Thesis title: *Un modello gerarchico e parsimonioso per la costruzione di un indicatore composito di
sviluppo sostenibile*
Supervisor: Prof. Maurizio Vichi
Internship   *July 2018*
Alleanza per lo Sviluppo Sostenibile (ASviS), Rome, Italy
B.Sc. in Statistics, Economics and Society   *November 2013 – October 2016*
University of Rome La Sapienza, Rome, Italy   Final score: 110/110 cum laude
Department of Statistical Sciences
Thesis title: *Tecniche di ricampionamento per l'inferenza non parametrica: il metodo bootstrap*
Supervisor: Prof. Marco Perone Pacifico
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

University of Valladolid, Valladolid, Spain   *February 2024*
Department of Statistics and Operational Research
University of Valladolid, Valladolid, Spain   *20-24 November 2023*
Department of Statistics and Operational Research
Tilburg University, Tilburg, The Netherlands   *November 2021 – January 2022*
Department of Methodology and Statistics

RESEARCH INTERESTS

Ultrametric Models	Model-Based Clustering	Robust statistics
Dimensionality Reduction	Hierarchical Models	Latent Variable Models

AWARDS, GRANTS & SCHOLARSHIP

Erasmus+ for Professors and Research Fellows, a.y. 2023/2024 *November 2023*
University of Milano Bicocca, Milan, Italy
Funding recipient

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

5. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2024+) Parsimonious Ultrametric Gaussian Mixture Models. *Statistics and Computing*. Accepted for publication.

4. Cavicchia, C., Sarnacchiaro, P., Vichi, M., **Zaccaria, G.** (2024) A model-based ultrametric composite indicator for studying waste management in Italian municipalities. *Computational Statistics*, 39, 21-50 (link).

3. Cavicchia, C., Vichi, M., **Zaccaria, G.** (2023) Hierarchical Disjoint Principal Component Analysis. *AStA Advances in Statistical Analysis*, 107(3), 537–574 (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).

ONGOING PROJECTS

4. Greselin, F., **Zaccaria, G.** (2023+) Studying hierarchical latent structures in heterogeneous populations with missing information. *Revision submitted.*

3. Uncovering data contamination: cellwise outlier detection in model-based clustering with missing data and constraints (w. Garcìa-Escudero, L.A., Greselin, F. and Mayo-Iscar, A.). *Manuscript in preparation.*

2. Fuzzy Spectral Data Embedding (w. Di Nuzzo, C.). *Manuscript in preparation.*

1. Ultrametric models for mixed-type data (w. Mingione, M. and Vichi, M.). *Manuscript in preparation.*

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. ISBN: 978-3-031-15508-6 (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. ISBN: 978-981-15-2699-2 (link).

REFERRED CONFERENCE PROCEEDINGS

11. **Zaccaria, G.** (2023) Ultrametric Gaussian Mixture Models With Parsimonious Structures. In P. Coretto, G. Giordano, M. La Rocca, M.L. Parrella, C. Rampichini (Eds.). *Book of Abstract and Short Papers CLADAG 2023* (pp. 314-317). Pearson. ISBN: 978-88-9193-563-2.

10. Greselin, F., **Zaccaria, G.** (2023) Handling missing data in complex phenomena: an ultrametric model-based approach for clustering. In F. M. Chelli, M. Ciommi, S. Ingrassia, F. Mariani, M. C. Recchioni (Eds.). *Book of the Short Papers SIS 2023* (pp. 961-996). Pearson. ISBN: 978-88-9193-561-8AAVV.

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

MBC2 2024 *September 2024*
7th Workshop on Models and Learning in Clustering and Classification
University of Catania, Catania, Italy
CMStatistics 2023 *December 2023*
16th International Conference of the ERCIM WG on Computational and Methodological Statistics
HTW Berlin, University of Applied Sciences, Berlin, Germany
Seminar Department of Statistics and Operational Research *November 2023*
University of Valladolid, Valladolid, Spain
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

SIS 2023 *June 2023*
52nd Scientific Meeting of the Italian Statistical Society
Marche Politecnica University, Ancona, Italy
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

Lecturer	*September 2023 – September 2023*

Department of Economics, Management and Statistics, University of Milano-Bicocca, Milan, Italy
Statistical Modelling II - Part II (PhD course, English, a.a. 2022/2023)

Adjunct Lecturer	*October 2022 – Present*

Department of Physics, University of Milano-Bicocca, Milan, Italy
Advanced Foundations of Statistics for AI (Master, English, a.a. 2022/2023 and 2023/2024)

Student Tutor	*October 2022 – September 2023*

Department of Physics, University of Milano-Bicocca, Milan, Italy
Advanced Foundations of Statistics for AI (Master, English, a.a. 2022/2023)

Lecturer	*March 2022 – March 2022*

Istituto Nazionale per l'Analisi delle Politiche Pubbliche (INAPP), Rome, Italy
Principal Component Analysis with R (Public Administration Training Course, Italian)

Adjunct Lecturer	*June 2022 – Present*

Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy
Regression Models (II Level Master Course, Italian, a.a. 2021/2022, 2022/2023, 2023/2024)
Course, exams and thesis supervision

Adjunct Lecturer	*February 2022 – October 2022*

Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy
Statistical Models for Social and Economic Analyses (II Level Master Course, Italian, a.a. 2021/2022)

Teaching Assistant	*February 2022 – September 2022*

Department of Economics and Finance, LUISS Guido Carli, Rome Italy
Statistics, Prof. Marco Perone Pacifico (Bachelor, English, a.a. 2021/2022)

Adjunct Lecturer	*November 2021 – September 2022*

Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy

Basic Statistics and Mathematics (Master, English, a.a. 2021/2022)

Teaching Assistant *March 2021 – July 2022*
Department of Medicine and Pharmacy, University of Rome La Sapienza, Rome Italy
Medical Statistics, Prof. Maurizio Vichi (Master, Italian, a.a. 2020/2021 and 2021/2022)

Student Tutor *January 2021 – Present*
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy
Statistics and Mathematics (Bachelor and Master, Italian and English, a.a. 2020/2021, 2021/2022 and 2022/2023)

Subject Expert *October 2020 – October 2022*
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy
Statistics and Mathematics (a.a. 2020/2021 and 2021/2022)

Teaching Assistant *March 2020 – September 2020*
Department of Political Sciences, University of Roma Tre, Rome Italy
Statistics, Dr. Domenico Cucina (Bachelor, Italian, a.a. 2019/2020)

Teaching Assistant *September 2019 – June 2022*
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy
Advances in Data Analysis and Statistical Modelling, Prof. Maurizio Vichi (Master, English, a.a. 2019/2020, 2020/2021 and 2021/2022)

Teaching Assistant *September 2019 – June 2022*
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy
Multivariate Statistics, Prof. Maurizio Vichi (Bachelor, Italian, a.a. 2019/2020, 2020/2021 and 2021/2022)

Teaching Assistant *September 2019 – December 2019*
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy
Statistics, Prof. Maria Brigida Ferraro, Prof. Stefania Gubbiotti, Prof. Valeria Sambucini (Bachelor, Italian, a.a. 2019/2020)

Teaching Assistant *March 2019 – July 2022*
Department of Medicine and Pharmacy, University of Rome La Sapienza, Rome Italy
Statistics for Research and Technology, Prof. Maurizio Vichi (Master, Italian, a.a. 2018/2019, 2019/2020, 2020/2021, 2021/2022)

Teaching Assistant *February 2019 – September 2019*
Department of Statistical Sciences, University of Rome La Sapienza, Rome Italy
Statistical Inference, Prof. Fulvio De Santis (Bachelor, Italian, a.a. 2018/2019)

ACADEMIC SERVICES

Member of the scientific program committee of SIS 2024
53rd Scientific Meeting of the Italian Statistical Society
June 17-20, 2024, Bari, Italy

Editor of the Springer volume "High-quality and Timely Statistics - New Methods and Applications"
Springer book series of the CESS 2022 conference (link)

Elected member of the board of y-SIS (2023-2025)
Young group of the Italian Statistical Society (link)

Organizer and member of the scientific program committee of StaTalk2024@UniFi as member of y-SIS
Workshop organized by the young group of the Italian Statistical Society (link)
May 30-31, 2024, Florence, Italy

Organizer and member of the scientific program committee of StaTalk2023@DSS Sapienza as member of y-SIS
Workshop organized by the young group of the Italian Statistical Society (link)
September 15, 2023, Rome, Italy

Member of the Local Organizing Committee of CESS 2022
Conference of European Statistics Stakeholders 2022 (link)
October 20-21, 2022, Rome, Italy

Organizer of the 8th Annual Workshop of the Ph.D. School in Statistical Sciences
June 15-16, 2021, University of Rome La Sapienza, Rome, Italy

Co-organizer of the y-SIS Invited Session of CMStatistics 2024
17th International Conference of the ERCIM Working Group on Computational and Methodological Statistics (link)
December 14-16, 2024, London, United Kingdom

Organizer and chair of the y-SIS Invited Session "y-SIS - Advances in Robust Statistical Methods for Complex Data" of CMStatistics 2023
16th International Conference of the ERCIM WG on Computational and Methodological Statistics (link)
December 16-18, 2023, Berlin, Germany

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

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

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

Thesis Supervision
II Level Master thesis supervision (4)
Department of Law and Economics, University of Rome Unitelma Sapienza, Rome Italy

Referee
Advances in Data Analysis and Classification, Annals of Operations Research, Australian & New Zealand Journal of Statistics, Computational Statistics, Journal of Classification, Metron, Proceedings of the Royal Society A, Soft Computing, SN Business & Economics (SNBE), Statistica Applicata, Statistics and Probability Letters, Book of Short Papers SIS 2022.

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, February 9th, 2024