

# Giorgia Zaccaria

## Curriculum Vitae

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### Personal Information

**Email**, [giorgia.zaccaria@unitelmasapienza.it](mailto:giorgia.zaccaria@unitelmasapienza.it), [giorgia.zaccaria@uniroma1.it](mailto:giorgia.zaccaria@uniroma1.it).

**Personal Pages**, *GitHub*, *University of Rome Unitelma Sapienza*, *University of Rome La Sapienza*, *Google Scholar*, *ResearchGate*.

### Current Position

November 2021 – present **Research Fellow**, *University of Rome Unitelma Sapienza*, Rome, Italy.  
Department of Law and Economics  
Supervisor: Prof. Pasquale Sarnacchiaro.

### Education

November 2021 – January 2022 **Visiting Ph.D. Student**, *Tilburg University*, Tilburg, The Netherlands.  
Department of Methodology and Statistics  
Supervisor: Prof. Jeroen Vermunt.

November 2018 – February 2022 **Ph.D. in Methodological Statistics**, *University of Rome La Sapienza*, Rome, Italy.  
Department of Statistical Sciences.  
Thesis title: "Ultrametric models for hierarchical dimensionality reduction" (in English).  
Supervisor: Prof. Maurizio Vichi.

September 2016 – October 2018 **M.Sc. in Statistical and Decision Sciences - European Master in Official Statistics (EMOS)**, *University of Rome La Sapienza*, Rome, Italy, *110/110 cum laude*.  
Thesis title: "A hierarchical and parsimonious model for building a composite indicator of sustainable development".  
Supervisor: Prof. Maurizio Vichi.

July 2018 **Internship**, *Alleanza per lo Sviluppo Sostenibile (ASviS)*, Rome, Italy.

September 2013 – October 2016 **B.Sc. in Statistics, Economics and Society**, *University of Rome La Sapienza*, Rome, Italy, *110/110 cum laude*.  
Thesis title: "Resampling techniques for nonparametric inference: the bootstrap method".  
Supervisor: Prof. Marco Perone Pacifico.

September 2008 – July 2013 **High School Diploma in Scientific Studies**, *Liceo Scientifico Statale Aristotele*, Rome, Italy, *100/100*.  
Bilingual Diploma: English and French.

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## Awards, Grants & Fellowships

- October 2020 **Grant for Junior Researcher "Avvio alla Ricerca"**, *University of Rome La Sapienza*, Rome, Italy.  
Project Title: "Hierarchical latent variable models for studying multidimensional phenomena in heterogeneous populations".
- May 2019 **Graduation Award**, *Fondazione Roma Sapienza*, Rome, Italy.  
Excellent Graduate Award - Premio Laureato Eccellente, Faculty of Ingegneria dell'Informazione, Informatica e Statistica, a.y. 2017/2018.
- November 2018 **Fellowship**, *University of Rome La Sapienza*, Rome, Italy.  
Three years of Ph.D. fellowship.

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## Publications

- 1 Cavicchia, C., Vichi, M., Zaccaria, G. (2022), Gaussian mixture model with an extended ultrametric covariance structure. *Advances in Data Analysis and Classification*, doi: 10.1007/s11634-021-00488-x ([link](#)).
- 2 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](#)).
- 3 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](#)).

### Conference Publications

- 1 Cavicchia, C., 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.
- 2 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: Le EdizMBCioni. ISBN: 978-88-5526-539-3.
- 3 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.
- 4 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.
- 5 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.
- 6 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.

- 7 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 Rome, Italy, 4-5 July* (pp. 346-349). Cuzzolin. ISBN: 978-88-86638-65-4.
- 8 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.

## Teaching Experiences

- February 2022 – present **Teaching assistant**, *LUISS Guido Carli*, Rome, Italy.  
Course: Statistics (Prof. Marco Perone Pacifico), Department of Economics and Finance.
- November 2021 – present **Lecturer**, *University of Rome Unitelma Sapienza*, Rome, Italy.  
Course: Basic Statistics and Mathematics, Department of Law and Economics.
- March 2021 – present **Teaching assistant**, *University of Rome La Sapienza*, Rome, Italy.  
Course: Statistica Medica (Prof. Maurizio Vichi), Faculty of Pharmacy and Medicine.
- January 2021–present **Student Tutor**, *University of Rome Unitelma Sapienza*, Rome, Italy.  
Subject areas: Statistica e Metodi Matematici per le Decisioni, Geografia Economica, Department of Law and Economics.
- October 2020 – present **Subject Expert (Cultore della Materia)**, *University of Rome Unitelma Sapienza*, Rome, Italy.  
Courses: Statistica, Statistica per le imprese, Statistica per la P.A., Metodi statistici per i mercati finanziari, Indicatori e metodologie statistiche per lo sviluppo sostenibile, Computational Statistics (Prof. Pasquale Sarnacchiaro), Department of Law and Economics.
- March 2020 – September 2020 **Teaching assistant**, *University of Rome Roma Tre*, Rome, Italy.  
Course: Statistica (Dr. Domenico Cucina), Department of Political Sciences.
- September 2019 – present **Teaching assistant**, *University of Rome La Sapienza*, Rome, Italy.  
Course: Advances in Data Analysis and Statistical Modelling (Prof. Maurizio Vichi), Department of Statistical Sciences.
- September 2019 – present **Teaching assistant**, *University of Rome La Sapienza*, Rome, Italy.  
Course: Statistica Multivariata (Prof. Maurizio Vichi), Department of Statistical Sciences.
- September 2019 – December 2019 **Teaching assistant**, *University of Rome La Sapienza*, Rome, Italy.  
Course: Statistica di Base (Prof.ssa Maria Brigida Ferraro, Prof.ssa Stefania Gubbiotti, Prof.ssa Valeria Sambucini), Department of Statistical Sciences.
- March 2019 – present **Teaching assistant**, *University of Rome La Sapienza*, Rome, Italy.  
Course: Statistica per la Ricerca Sperimentale e Tecnologica (Prof. Maurizio Vichi), Faculty of Pharmacy and Medicine.
- February 2019 – July 2019 **Teaching assistant**, *University of Rome La Sapienza*, Rome, Italy.  
Course: Inferenza Statistica (Prof. Fulvio De Santis), Department of Statistical Sciences.

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## Attended National and International Conferences

- January 2022 **G. Zaccaria**, *An ultrametric model to build a composite indicator system*, with C. Cavicchia, P. Sarnacchiaro & M. Vichi, *Innovation & Society 5.0: Statistical and Economic Methodologies for Quality Assessment*, **IES 2022**, 27/01/2022 – 28/01/2022, Capua, Italy.  
Contributed session: Assessing Performance
- November 2021 **G. Zaccaria**, *Ultrametric models for studying multidimensional phenomena with applications in psychometrics and social sciences*, **Invited seminar**, Tilburg University, Department of Methodology and Statistics, Tilburg, The Netherlands.
- July 2021 **G. Zaccaria**, *Gaussian mixture model with a new parsimonious parameterization of the covariance matrix*, with C. Cavicchia & M. Vichi, , **8th Annual Workshop of the Ph.D. School in Statistical Sciences**, 15/07/2021 - 16/07/2021, University of Rome La Sapienza, Rome, Italy.
- July 2021 **G. Zaccaria**, *A new parsimonious parameterization of the covariance matrix in Gaussian mixture models*, with C. Cavicchia & M. Vichi, *Data Science, Statistics & Visualisation and the European Conference on Data Analysis*, **DSSV-ECDA 2021**, 07/07/2021 – 09/07/2021, Rotterdam, The Netherlands.  
Virtual conference. Short talk session
- June 2021 **G. Zaccaria**, *The ultrametric covariance model for modelling teachers' job satisfaction*, with C. Cavicchia & M. Vichi, *50th Edition of the Scientific Meeting of the Italian Statistical Society*, **SIS 2021**, 21/06/2021 – 25/06/2021, Pisa, Italy.  
Virtual conference. Contributed session: Social indicators: applications and methods
- February 2020 **G. Zaccaria**, *The ultrametric correlation matrix for modelling hierarchical factorial structure*, with C. Cavicchia & M. Vichi, **7th Annual Workshop of the Ph.D. School in Statistical Sciences**, 12/02/2020, University of Rome La Sapienza, Rome, Italy.
- August 2019 **G. Zaccaria**, *Model-based hierarchical parsimonious clustering and dimensionality reduction*, with C. Cavicchia & M. Vichi, *16th Conference of the International Federation of Classification Societies*, **IFCS 2019**, 26/08/2019 – 29/08/2019, Thessaloniki, Greece.  
Contributed session: CONTR5: Dimension reduction and clustering I
- July 2019 **G. Zaccaria**, *A new hierarchical model-based composite indicator on climate change*, with C. Cavicchia & M. Vichi, *Statistical evaluation systems at 360: techniques, technologies and new frontiers*, **IES 2019**, 04/07/2019 – 05/07/2019, Rome, Italy.  
Contributed session: Environmental Processes, Human Activities and Their Interaction
- June 2019 **G. Zaccaria**, *Hierarchical Disjoint Principal Component Analysis*, with C. Cavicchia & M. Vichi, **6th Annual Workshop of the Ph.D. School in Statistical Sciences**, 12/06/2019, University of Rome La Sapienza, Rome, Italy.
- March 2019 **G. Zaccaria**, *Hierarchical Disjoint Principal Component Analysis*, with C. Cavicchia & M. Vichi, *European Conference on Data Analysis*, **ECDA 2019**, 18/03/2019 – 20/03/2019, Bayreuth, Germany.  
Contributed session: Dimensionality Reduction 1
- October 20, 2017 **Panel Member**, *Statistics Beyond 2020: challenges and risks*, "The value of Official Statistics as a Public Good" conference, Lisbon, Portugal.  
Panel Member as European Master in Official Statistics (EMOS) Student - European Statistics Day 2017, ESAC.

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## Academic Services

**Referee**, *Advances in Data Analysis and Classification (ADAC)*, *SN Business & Economics*, *Metron*, *Computational Statistics (COST)*.

**Local Organizing Committee Member of CESS 2022**, *Conference of European Statistics Stakeholders 2022*, 20-21/10/2022, Rome, Italy.

**Organizer of a solicited session of SIS 2022**, 51st Scientific Meeting of the Italian Statistical Society, 22-24/06/2022, Caserta, Italy.

**Organizer of the 8th Annual Workshop of the Ph.D. School in Statistical Sciences**, Department of Statistical Sciences, University of Rome La Sapienza, 15-16/07/2021, Rome, Italy.

## Society Memberships

- July 2019 – **SIS, y-SIS and CLADAG-SIS Member.**  
present Member of the Italian Statistical Society (Società Italiana di Statistica, SIS), Young SIS and CLAssification and Data Analysis Group (CLADAG).
- January 2018 **IAOS Member.**  
– December 2018 Member of the International Statistical Society.

## Other Experiences

- December 2015 – March 2019 **IELTS Invigilator**, British Council, Rome, Italy.  
IELTS Invigilator for written and oral exam sessions.
- June 2012 **INCREASE Delegate**, XII International Human Right Council, OLMUN, Oldenburg, Germany.

## Languages

- Italian Mother tongue  
English Fluent  
French Good

*FCE Cambridge Certification, B2*  
*Diplôme d'études en langue française, DELF B2*

## Computer skills

### Languages and Software.

MATLAB, R, R Studio, SAS, SAS Enterprise Miner 14, SPSS, LaTeX, Microsoft Office.

### Certifications.

SAS Predictive Modeler Using SAS Enterprise Miner 14 (October 8, 2018).

### Operating Systems.

Windows.

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Rome, February 28, 2022