

# CARLO CAVICCHIA

## PERSONAL DATA

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## CURRENT POSITION

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**Assistant Professor of Statistics**

*May 2020 - Present*

Econometric Institute, Erasmus School of Economics, Erasmus Rotterdam University, Rotterdam

## EDUCATION

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**Dutch University Teaching Qualification UTQ-BKO**

*January 2022 - June 2022*

Risbo, Erasmus University Rotterdam, Rotterdam

**Ph.D. in Statistics**

*November 2016 - February 2020*

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

Thesis title: *Hierarchical latent variable models for dimensionality reduction: an application on composite indicators*; Supervisor: Prof. M. Vichi

**MSc Degree in Statistics and Decision Science**

*November 2013 - January 2016*

University of Rome La Sapienza, Rome

110/110 with honors

**BSc Degree in Statistics**

*November 2009 - July 2013*

University of Rome La Sapienza, Rome

105/110

## QUALIFICATIONS

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**National Qualification for Associate Professor (Italy, ASN II fascia), Statistics (SC 13/D1)**

## RESEARCH AND TEACHING INTERESTS

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Hierarchical Models

Non-parametric Statistics

Data Science

Latent Variable Models

Composite Indicators

Unsupervised Classification

## RESEARCH EXPERIENCES

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**Research visit**

*November 2019 – December 2019*

Econometric Institute, Erasmus School of Economics, Erasmus Rotterdam University, Rotterdam

Supervisor: Prof. P.J.F. Groenen

**Research fellowship**

*May 2019 – April 2020*

Department of Law and Economics, University of Rome UnitelmaSapienza, Rome

Supervisor: Prof. P. Sarnacchiaro

**Researcher on a project**

*March 2016 – November 2018*

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

Title: *Development of a procedure to detect and manage outliers for big data*

Supervisor: Prof. M. Vichi and ENEA

**Researcher on a project**

*March 2016 – January 2017*

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

Title: *Construction of a hierarchical non-negative and disjoint composite indicator for a set of quantitative variables*

Supervisor: Prof. M. Vichi

## AWARDS AND GRANTS

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| <b>Research Grant for Junior Researchers</b> (1270.00e)<br>University of Rome La Sapienza, Rome | <i>August 2017</i> |
| <b>Best report of Stats under the stars<sup>3</sup></b><br>Italian Statistical Society (SIS)    | <i>June 2017</i>   |
| <b>Ph.D. scholarship</b> (3 years)<br>University of Rome La Sapienza, Rome                      | <i>August 2016</i> |

## FEATURED PUBLICATIONS

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- Cavicchia, C., P. Sarnacchiaro, M. Vichi, and G. Zaccaria: *A model-based ultrametric composite indicator for studying waste management in Italian municipalities*. In: *Computational Statistics* (2023). DOI: [10.1007/s00180-023-01333-9](https://doi.org/10.1007/s00180-023-01333-9).
- Vichi, M., C. Cavicchia, and P.J.F. Groenen: *Hierarchical Means Clustering*. In: *Journal of Classification* 39.3 (2022), pp. 553–577. DOI: [10.1007/s00357-022-09419-7](https://doi.org/10.1007/s00357-022-09419-7).
- Cavicchia, C., M. Vichi, and G. Zaccaria: *Hierarchical Disjoint Principal Component Analysis*. In: *Advances in Statistical Analysis* (2022). DOI: [10.1007/s10182-022-00458-4](https://doi.org/10.1007/s10182-022-00458-4).
- Cavicchia, C., M. Vichi, and G. Zaccaria: *Gaussian Mixture Model with an extended ultrametric co-variance structure*. In: *Advances in Data Analysis and Classification* 16.2 (2022), pp. 399–427. DOI: [10.1007/s11634-021-00488-x](https://doi.org/10.1007/s11634-021-00488-x).
- Cavicchia, C. and M. Vichi: *Second-order disjoint factor analysis*. In: *Psychometrika* 87.1 (2022), pp. 289–309. DOI: [10.1007/s11336-021-09799-6](https://doi.org/10.1007/s11336-021-09799-6).
- Cavicchia, C. and P. Sarnacchiaro: *A multi-group higher-order factor analysis for studying the gender-effect in teacher job satisfaction*. In: *METRON* 80.1 (2022), pp. 23–38. DOI: [10.1007/s40300-021-00204-x](https://doi.org/10.1007/s40300-021-00204-x).
- Cavicchia, C. and P. Sarnacchiaro: *The effect of a new e-tivity on students' performance and satisfaction in an online course*. In: *Statistica Applicata - Italian Journal of Applied Statistics* 33.2 (2021), pp. 163–175. DOI: [10.26398/IJAS.0033-009](https://doi.org/10.26398/IJAS.0033-009).
- Cavicchia, C., P. Sarnacchiaro, and M. Vichi: *A composite indicator for the waste management in the EU via hierarchical disjoint non-negative factor analysis*. In: *Socio-Economic Planning Sciences* 73 (2021), p. 100832. DOI: [10.1016/j.seps.2020.100832](https://doi.org/10.1016/j.seps.2020.100832).
- Cavicchia, C. and M. Vichi: *Statistical model-based composite indicators for tracking coherent policy conclusions*. In: *Social Indicators Research* 156.2 (2021), pp. 449–479. DOI: [10.1007/s11205-020-02318-7](https://doi.org/10.1007/s11205-020-02318-7).
- Cavicchia, C., M. Vichi, and G. Zaccaria: *The ultrametric correlation matrix for modelling hierarchical latent concepts*. In: *Advances in Data Analysis and Classification* 14.4 (2020), pp. 837–853. DOI: [10.1007/s11634-020-00400-z](https://doi.org/10.1007/s11634-020-00400-z).

## INVITED TALKS AND SEMINARS

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|---|------------------|
| <b>ISI 2023 - 64<sup>th</sup> International Statistical Institute World Statistics Congress</b><br>Ottawa, Canada   | <i>July 2023</i> |
| <b>DSSV-ECDA 2023 - Joint conference of Data Science, Statistics &amp; Visualisation and the European Conference on Data Analysis</b><br>Antwerp, Belgium | <i>July 2023</i> |
| <b>SIS 2023 -</b><br>Ancona, Italy  | <i>June 2023</i> |

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| <b>Seminar “Convex clustering of mixed numerical and categorical data”</b>   | <i>April 2023</i>     |
| Statistical Sciences Department - Sapienza University (Virtual)  |                       |
| <b>CMStatistics 2022 - 15<sup>th</sup> International Conference of the ERCIM WG on Computational and Methodological Statistics</b>               | <i>December 2022</i>  |
| London, UK (Virtual)   |                       |
| <b>IFCS 2022 - 17<sup>th</sup> Conference of the IFCS</b>  | <i>July 2022</i>      |
| Porto, Portugal  |                       |
| <b>EcoSta 2022 - 5th International Conference on Econometrics and Statistics</b>   | <i>June 2022</i>      |
| Kyoto, Japan (Virtual)   |                       |
| <b>Seminar series “Introduction to Statistics”</b>   | <i>February 2022</i>  |
| Hospitality Management - Federico II University of Naples (Virtual)  |                       |
| <b>ISI 2021 - 63<sup>rd</sup> International Statistical Institute World Statistics Congress “Statistics and Data Science for a Better World”</b> | <i>July 2021</i>      |
| Virtual conference   |                       |
| <b>EconJobMarket</b>   | <i>December 2019</i>  |
| Rotterdam, Netherlands   |                       |
| <b>ASA 2019 Scientific Conference on Statistics for Health and Well-Being</b>  | <i>September 2019</i> |
| Brescia, Italy   |                       |
| <b>12<sup>th</sup> Scientific Meeting of Classification and Data Analysis Group</b>  | <i>September 2019</i> |
| Cassino, Italy   |                       |
| <b>49<sup>th</sup> Scientific meeting of the Italian Statistical Society</b>   | <i>June 2018</i>      |
| Palermo, Italy   |                       |
| <b>Workshop: Selection and Synthesis of Indicators for Sustainable Development Goals: Methodologies and Applications</b>                         | <i>October 2017</i>   |
| Rome, Italy  |                       |

## SUPERVISION

|  |                       |
|--|-----------------------|
| <b>MSc theses</b> – as second reader – (3)   | <i>2022 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Econometrics and Management Science, Quantitative Finance                          |                       |
| <b>MSc theses</b> (2)  | <i>2021 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Econometrics and Management Science, Econometrics                                  |                       |
| <b>MSc theses</b> (8)  | <i>2021 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Econometrics and Management Science, Business Analytics and Quantitative Marketing |                       |
| <b>MSc theses</b> (10)   | <i>2021 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Economics and Business, Data Science and Marketing Analytics                       |                       |
| <b>MSc theses</b> – as second reader – (2)   | <i>2021 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Econometrics and Management Science, Business Analytics and Quantitative Marketing |                       |
| <b>MSc theses</b> – as second reader – (5)   | <i>2021 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Economics and Business, Data Science and Marketing Analytics                       |                       |
| <b>BSc theses</b> (24)   | <i>2020 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| BSc Econometrics and Operational Research  |                       |
| <b>BSc theses</b> – as second reader – (24)  | <i>2020 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| BSc Econometrics and Operational Research  |                       |

## TEACHING AS COORDINATOR OR LECTURER

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|--|-----------------------|
| <b>Applied Statistics 2</b>  | <i>2022 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| BSc Economics and Business Economics   |                       |
| <b>Toegepaste Statistiek 2</b>   | <i>2022 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| BSc Economics and Business Economics   |                       |
| <b>Seminar Case Studies in Business Analytics and Quantitative Marketing</b>           | <i>2022 - Present</i> |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Econometrics and Management Science, Business Analytics and Quantitative Marketing |                       |
| <b>Seminar in Business Analytics and Quantitative Marketing</b>                        | <i>2021</i>           |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| BSc Econometrics and Operational Research  |                       |
| <b>Seminar Data Science for Marketing Analytics</b>                                    | <i>2020 - 2022</i>    |
| Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam                   |                       |
| MSc Economics and Business, Data Science and Marketing Analytics                       |                       |
| <b>Statistics</b>  | <i>2019</i>           |
| School of Economics, Tor Vergata University of Rome, Rome                              |                       |
| Master of Science in European Economy and Business Law                                 |                       |

## ACADEMIC AND EDITORIAL SERVICES

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| <b>IASC data analysis competition officer</b>  | <i>2023-2025</i>      |
| <b>Member of the committee of IASC data analysis competition</b>   | <i>2023</i>           |
| <b>Organizer of an invited session of CLADAG 2023</b>  | <i>2023</i>           |
| <b>Member of the scientific programme committee of CLADAG 2023</b>   | <i>2023</i>           |
| <b>Member of the scientific programme committee of IES 2023</b>  | <i>2023</i>           |
| <b>Organizer of an invited session of SIS 2023</b>   | <i>2023</i>           |
| <b>Responsible for the “Sustainability” topic within SVQS</b>  | <i>2022 - Present</i> |
| <b>Organizer of an invited session of CMStatistics 2022</b>  | <i>2022</i>           |
| <b>Co-organizer for the Econometrics internal seminars at Econometric Institute, Erasmus University Rotterdam</b>  | <i>2022 - Present</i> |
| <b>Organizer of an invited session of ECDA 2022</b>  | <i>2022</i>           |
| <b>Member of the scientific programme committee of HackTheGene 2022</b>  | <i>2022</i>           |
| <b>Co-guest-editor of the special issue “Advances in statistical modelling, methods and applications” in METRON</b>                                      | <i>2022</i>           |
| <b>Member of the committee of the prize “Premio TStat Training”</b>  | <i>2022</i>           |
| <b>Co-editor of "Book of Short Papers of SIS 2022"</b>   | <i>2022</i>           |
| <b>National coordinator of y-SIS</b>   | <i>2022</i>           |
| <b>Member of the scientific programme committee of SIS 2022</b>  | <i>2022</i>           |
| <b>Member of the scientific programme committee of IES 2022</b>  | <i>2022</i>           |
| <b>Member of the national board of y-SIS</b>   | <i>2021 - 2022</i>    |
| <b>Member of the organizing committee of DSSV-ECDA 2021</b>  | <i>2021</i>           |
| <b>Member of the organizing committee of DSSV 2020</b>   | <i>2020</i>           |
| <b>Member of the admission committee of II level master: “Quantitative methods and models for decision support”, University of Rome UnitelmaSapienza</b> | <i>2020</i>           |
| <b>Organizer of an invited session of SIS 2020</b>   | <i>2020</i>           |

**Reviewer for a number of scientific journals in Statistics***2018 - Present*

– in alphabetic order – Advances in Data Analysis and Classification; Annals of Operations Research; Behaviormetrika; BMC Psychology; Computational Statistics; Computational Statistics and Data Analysis; Journal of Classification; Journal of Data Science, Statistics and Visualisation; Journal of Statistical Computation and Simulation; METRON; Operational Research; PLOS ONE; SAGE Open; SN Business & Economics; Statistical Methods and Applications; Socio-Economic Planning Sciences

**MEMBERSHIPS**

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| Erasmus Research Institute of Management (ERIM - Associate member) | <i>2023</i> |
| Vereniging voor Ordinatie en Classificatie (VOC)                   | <i>2022</i> |
| International Association Statistical Computing (IASC)             | <i>2020</i> |
| Statistica per la Valutazione e la Qualità nei Servizi (SVQS)      | <i>2019</i> |
| Classification and Data Analysis Group (CLADAG)                    | <i>2019</i> |
| young SIS (y-SIS)  | <i>2016</i> |
| Società Italiana di Statistica - Italian Statistical Society (SIS) | <i>2016</i> |

**WORK EXPERIENCES**

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|--|--------------------------------|
| <b>Consultant as Lead Statistician</b>   | <i>October - December 2019</i> |
| Project: <i>Survey in Zanzibar on community socio-economic conditions</i> , ARS Progetti S.P.A., Rome  |                                |
| <b>Consultant as Supervisor</b>  | <i>July - October 2019</i>     |
| Project: <i>Survey in Zanzibar on environmental cleanliness, public service perception and tourism competitiveness</i> , NGO Fondazione ACRA, Rome   |                                |
| <b>Consultant as Lead Statistician</b>   | <i>June - August 2018</i>      |
| Project: <i>Survey within the framework of the “Consultancy Services to support community engagement and awareness within the Urban Municipal Council”</i> , NGO Fondazione ACRA, Zanzibar, Tanzania |                                |

**LANGUAGES**

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|----------------|--------------------------|
| <b>Italian</b> | Native language          |
| <b>English</b> | Speaking: C1 Writing: C2 |

**EXTRA-CURRICULAR**

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- President and Co-Founder “ASD Valcanneto Futsal” (Cerveteri, 2018 - 2021)
- Attended the 1<sup>st</sup> International Summer School on Classification and Data Analysis (Rimini, 2017)
- Attended a Erasmus semester at University College of Dublin (Dublin, 2012)