

CARLO CAVICCHIA

PERSONAL DATA

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CURRENT POSITION

Assistant Professor of Statistics

May 2020 - Present

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

EDUCATION

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

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

RESEARCH AND TEACHING INTERESTS

Hierarchical Models

Non-parametric Statistics

Data Science

Latent Variable Models

Composite Indicators

Unsupervised Classification

RESEARCH EXPERIENCES

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

ESE Starter grant (300000.- e) Erasmus School of Economics, Erasmus Rotterdam University, Rotterdam	September 2023
Research Grant for Junior Researchers (1270.- e) University of Rome La Sapienza, Rome	August 2017
Best report of Stats under the stars ³ Italian Statistical Society (SIS)	June 2017
Ph.D. scholarship (3 years) University of Rome La Sapienza, Rome	August 2016

FEATURED PUBLICATIONS

- Velden, M. van de, A. Iodice D'Enza, A. Markos, and C. Cavicchia: *A general framework for implementing distances for categorical variables*. In: *Pattern Recognition* (2024+), p. 110547. DOI: <https://doi.org/10.1016/j.patcog.2024.110547>.
- Cavicchia, C., M. Vichi, and G. Zaccaria: *Parsimonious Ultrametric Gaussian Mixture Models*. In: *Statistics and Computing* 34 (2024), p. 108. DOI: [10.1007/s11222-024-10405-9](https://doi.org/10.1007/s11222-024-10405-9).
- Cavicchia, C. and P. Sarnacchiaro: *A new hierarchical composite indicator model for ranking the top 20 European football teams*. In: *Quality and Quantity* (2024). DOI: [10.1007/s11135-024-01842-9](https://doi.org/10.1007/s11135-024-01842-9).
- 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* 39.1 (2024), pp. 21–50. DOI: [10.1007/s00180-023-01333-9](https://doi.org/10.1007/s00180-023-01333-9).
- Cavicchia, C., M. Vichi, and G. Zaccaria: *Hierarchical Disjoint Principal Component Analysis*. In: *Advances in Statistical Analysis* 107.3 (2023), pp. 537–574. DOI: [10.1007/s10182-022-00458-4](https://doi.org/10.1007/s10182-022-00458-4).
- 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: *Gaussian Mixture Model with an extended ultrametric covariance 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

IFCS 2024 - 18th Conference of the IFCS San José, Italy	<i>July 2024</i>
SIS 2024 - 52nd Scientific meeting of the Italian Statistical Society Bari, Italy	<i>June 2024</i>
Seminar “Convex clustering of mixed numerical and categorical data” DIETI Department - Federico II University of Naples	<i>April 2023</i>
Workshop on “Statistical Computing and Robust Inference for High Dimensional Data” Taipei, Taiwan	<i>December 2023</i>
ISI 2023 - 64th International Statistical Institute World Statistics Congress Ottawa, Canada	<i>July 2023</i>
DSSV-ECDA 2023 - Joint conference of Data Science, Statistics & Visualisation and the European Conference on Data Analysis Antwerp, Belgium	<i>July 2023</i>
SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation Ancona, Italy	<i>June 2023</i>
Seminar “Convex clustering of mixed numerical and categorical data” Statistical Sciences Department - Sapienza University (Virtual)	<i>April 2023</i>
CMStatistics 2022 - 15th International Conference of the ERCIM WG on Computational and Methodological Statistics London, UK (Virtual)	<i>December 2022</i>
IFCS 2022 - 17th Conference of the IFCS Porto, Portugal	<i>July 2022</i>
EcoSta 2022 - 5th International Conference on Econometrics and Statistics Kyoto, Japan (Virtual)	<i>June 2022</i>
Seminar series “Introduction to Statistics” Hospitality Management - Federico II University of Naples (Virtual)	<i>February 2022</i>
CLADAG 2021 - 13th Scientific Meeting of Classification and Data Analysis Group Florence, Italy (Virtual)	<i>September 2021</i>
ISI 2021 - 63rd International Statistical Institute World Statistics Congress “Statistics and Data Science for a Better World” Virtual conference	<i>July 2021</i>
EconJobMarket Rotterdam, Netherlands	<i>December 2019</i>
ASA 2019 Scientific Conference on Statistics for Health and Well-Being Brescia, Italy	<i>September 2019</i>
CLADAG 2019 - 12th Scientific Meeting of Classification and Data Analysis Group Cassino, Italy	<i>September 2019</i>
SIS 2018 - 49th Scientific meeting of the Italian Statistical Society Palermo, Italy	<i>June 2018</i>
Workshop on “Selection and Synthesis of Indicators for Sustainable Development Goals: Methodologies and Applications” Rome, Italy	<i>October 2017</i>

SUPERVISION

MSc theses (2) Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam MSc Econometrics and Management Science, Econometrics	<i>2021 - Present</i>
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MSc theses (12)	<i>2021 - Present</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
MSc Econometrics and Management Science, Business Analytics and Quantitative Marketing	
MSc theses (14)	<i>2021 - Present</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
MSc Economics and Business, Data Science and Marketing Analytics	
BSc theses (28)	<i>2020 - Present</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
BSc Econometrics and Operational Research	

TEACHING AS COORDINATOR OR LECTURER

Applied Statistics 2	<i>2022 - Present</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
BSc Economics and Business Economics	
Toegepaste Statistiek 2	<i>2022 - Present</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
BSc Economics and Business Economics	
Seminar Case Studies in Business Analytics and Quantitative Marketing	<i>2022 - Present</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
MSc Econometrics and Management Science, Business Analytics and Quantitative Marketing	
Seminar in Business Analytics and Quantitative Marketing	<i>2021</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
BSc Econometrics and Operational Research	
Seminar Data Science for Marketing Analytics	<i>2020 - 2022</i>
Erasmus School of Economics, Erasmus University Rotterdam, Rotterdam	
MSc Economics and Business, Data Science and Marketing Analytics	
Statistics	<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

Member of the scientific programme committee of CLADAG-VOC 2025	<i>2025</i>
Member of the scientific programme committee of IES 2025	<i>2025</i>
Article Editor for Sage Open	<i>2024 - Present</i>
IASC data analysis competition officer	<i>2023-2025</i>
Member of the committee of IASC data analysis competition	<i>2023</i>
Organizer of an invited session of CLADAG 2023	<i>2023</i>
Member of the scientific programme committee of CLADAG 2023	<i>2023</i>
Member of the scientific programme committee of IES 2023	<i>2023</i>
Organizer of an invited session of SIS 2023	<i>2023</i>
Responsible for the “Sustainability” topic within SVQS	<i>2022 - Present</i>
Organizer of an invited session of CMStatistics 2022	<i>2022</i>
Co-organizer for the Econometrics internal seminars at Econometric Institute, Erasmus University Rotterdam	<i>2022 - Present</i>
Organizer of an invited session of ECDA 2022	<i>2022</i>
Member of the scientific programme committee of HackTheGene 2022	<i>2022</i>
Co-guest-editor of the special issue “Advances in statistical modelling, methods and applications” in METRON	<i>2022</i>
Member of the committee of the prize “Premio TStat Training”	<i>2022</i>
Co-editor of "Book of Short Papers of SIS 2022"	<i>2022</i>
National coordinator of y-SIS	<i>2022</i>

Member of the scientific programme committee of SIS 2022	2022
Member of the scientific programme committee of IES 2022	2022
Member of the national board of y-SIS	2021 - 2022
Member of the organizing committee of DSSV-ECDA 2021	2021
Member of the organizing committee of DSSV 2020	2020
Member of the admission committee of II level master: “Quantitative methods and models for decision support”, University of Rome UnitelmaSapienza	2020
Organizer of an invited session of SIS 2020	2020
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 Computational Social Science; Journal of Data Science, Statistics and Visualisation; Journal of Infrastructure, Policy and Development; Journal of Statistical Computation and Simulation; Journal of the Royal Statistical Society Series B; METRON; Operational Research; PLOS ONE; SAGE Open; SN Business & Economics; SoftwareX; Statistical Methods and Applications; Socio-Economic Planning Sciences; Statistica	

MEMBERSHIPS

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

WORK EXPERIENCES

Consultant as Lead Statistician	October - December 2019
Project: <i>Survey in Zanzibar on community socio-economic conditions</i> , ARS Progetti S.P.A., Rome	
Consultant as Supervisor	July - October 2019
Project: <i>Survey in Zanzibar on environmental cleanliness, public service perception and tourism competitiveness</i> , NGO Fondazione ACRA, Rome	
Consultant as Lead Statistician	June - August 2018
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

Italian	Native language
English	Speaking: C1 Writing: C2

EXTRA-CURRICULAR

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