Salvatore Ingrassia, Ph.D.

Department of Economics and Business, University of Catania
Corso Italia 55, 95129, Catania, Italy.[1]

Nationality: Italian
Family status: Married
Telephone (Work): +39 095 7537732
Date of birth: February 14th, 1960

E-mail: salvatore.ingrassia@unict.it
Web: http://www.dei.unict.it/docenti/salvatore.ingrassia
http://www.datasciencegroup.unict.it/content/salvatore-ingrassia
ORCID: orcid.org/0000-0003-2052-4226

Position

- *Professor of Statistics*, since July 2001 to present.

Education

- *Research Fellow*, Département d'Intelligence Artificielle et Mathématiques (DIAM), Ecole Normale Supérieure de Cachan (France), 1993-1994.
- *Ph.D. in Applied Mathematics and Computer Science*, University of Naples (Italy), 1991; Ph.D. Thesis: *Spectra of Markov chains and optimization algorithms* (*Spettri di catene di Markov e algoritmi di ottimizzazione*).
- *Degree in Electrical Engineering*, University of Catania (Italy), 1986.

Academic Appointments

- *Professor*, Department of Economics and Business, University of Catania, November 2005 to present.
- *Professor*, Department of Economics and Statistics, University of Calabria, July 2001 to October 2005.
- *Associate Professor*, Department of Economics and Statistics, University of Calabria, November 1998 to June 2001.
- *Assistant Professor*, Faculty of Economics, University of Catania, October 1991 to October 1998.

Research Interests

- Classification and Clustering, Model-Based Clustering, Mixture Models, Computational Statistics, Multivariate Statistics, Statistical Learning, Neural Networks. In such fields he is author of several articles published in many top scientific journals

Membership of Professional Societies

- Italian Statistical Society (SIS), International Federation of Classification Society (IFCS), International Statistical Institute (ISI), International Association for Statistical Computing (IASC), Italian Mathematical Society (UMI), Classification and Data Analysis Group of the Italian Statistical Society (CLADAG).

Editorial Services

Editorial Board Memberships

- *Statistical Methods and Applications*: Associate Editor, 2013-2019.
- *Advances in Data Analysis and Classification*: Associate Editor, 2014 to present.

[1] Last update: July 8, 2025.

- *Computational Statistics and Data Analysis*: Associate Editor, 2015-2024.
- *Silesian Statistical Review*: member of the Editorial Board, 2016 to present.
- *Cracow Review of Economics and Management*: member of the Editorial Board, 2020 to present.
- *Econometrics Ekonometria. Advances in Data Analysis*: member of the Editorial Advisory Board, 2021 to present.
- *Induzioni*: member of the Scientific Committee, 2022 to present.

Guest Editorships

- *Advances in Data Analysis and Classification* (ADAC), special issue on "Models and Learning in clustering and classification", Guest Editors: Salvatore Ingrassia Julien Jacques and Weixin Yao, **1**, 2022
- *Computational Statistics & Data Analysis* (CSDA), The 4th Special Issue on Advances in Mixture Model, Guest Editors: Jochen Einbeck, John Hinde, Salvatore Ingrassia Ingrassia, Tsung-I Lin and Paul D. McNicholas, **132**, 2019
- *Advances in Data Analysis and Classification* (ADAC), special issue on "Advances on model-based clustering and classification", Guest Editors: Sylvia Frühwirth-Schnatter, Salvatore Ingrassia and Agustin Mayo-Iscar, **9**, 2019
- *Econometrics and Statistics* (ES), "Special Issue on Mixture Models", Guest Editors: John Hinde, Salvatore Ingrassia, Tsung-I Lin and Paul McNicholas, **3**, 2017.
- *Advances in Data Analysis and Classification* (ADAC), special issue on "New Trends on Model-Based Clustering and Classification", Guest Editors: Gérard Govaert, Salvatore Ingrassia and Geoff McLachlan, **9**(4), 2016.
- *Computational Statistics and Data Analysis* (CSDA), 3rd special issue on "Advances in Mixture Models", Guest Editors: John Hinde, Salvatore Ingrassia, Tsung-I Lin and Paul McNicholas, **93**, 2016.
- *Advances in Data Analysis and Classification* (ADAC), special issue on "Model Based Clustering and Classification", Guest Editors: Hans-Hermann Bock, Salvatore Ingrassia and Jeroen Vermunt, **7**(3), 2013 and **8**(1), 2014.

Reviewer Activities for Scientific Journals

- *Advances in Data Analysis and Classification*, *Biometrika*, *Communication in Statistics: Theory and Methods*, *Computational Statistics*, *Computational Statistics & Data Analysis*, *Journal of Applied Statistics*, *Journal of Approximate Reasoning*, *Journal of Classification*, *Journal of Multivariate Analysis*, *Journal of Statistical Computation and Simulation*, *Journal of Vibration and Control*, *Journal of the Royal Statistical Society B*, *Journal of the Royal Statistical Society C*, *Journal of Statistical Software*, *Machine Learning*, *Metron*, *Multivariate Behavioral Research*, *Neural Networks*, *Optimization Methods and Software*, *Psychometrika*, *Revista Colombiana de Estadistica*, *Stat*, *Statistica*, *Statistica Applicata*, *Statistical Methods and Applications*, *Statistical Methods in Medical Research*, *Statistics and Computing*.

Project Reviewer

- National Research Funding Competition - Programa FONDECYT Regular - Chile (2019)
- Natural Sciences and Engineering Research Council of Canada (NSERC) - Reviewer for Application for a Discovery Grant / CRSNG (2011, 2014)

Other Services

- Election Committee Member of the International Federation of the Classification Societies (IFCS), 2022-
- President of the University Assessment Unit of the University of Catania (2021-2025)
- Member of the University Assessment Unit of the University of Napoli "L'Orientale) (2015-2021)
- Elected Member of the International Statistical Institute (ISI), 2020-
- Member of the Executive Board of the Italian Statistical Society, 2020-2024.
- Co-chair of the specialized team on "Mixture Models", ERCIM WG on "Computational and Methodological Statistics", 2020-.
- Member of the Board of the "International Federation of the Classification Societies" (IFCS) (2018-2022).
- Quality Assurance referee for the *ANVUR - Italian Agency for the Evaluation of Research and Universities Institutes* (from 2017)
- Quality Assurance Chief Officer at University of Catania (2017-2021)

- Member of the *Board of Directors* of the *"International Association for Statistical Computing"* of the International Statistical Institute (2016-2020).
- Member of the University Assessment Unit of the University of Cagliari (2015-2021)
- President of the *Classification and Data Analysis Group (CLADAG)* of the Italian Statistical Society (2015-2017).
- Vice-President of the *Classification and Data Analysis Group (CLADAG)* of the Italian Statistical Society (2013-2015).
- Head of the Department of Business and Management, University of Catania (2010-2012).
- President of the Scientific Advisory Board of "Economics and Statistics", University of Catania (2009-2011).
- Deputy-Head of Department of Economics and Statistics, University of Calabria (2003-2005).
- Teaching Director, Master in Statistics, University of Calabria (2003-2005).
- Teaching Director, B.A. in Statistics, University of Calabria (2001-2005).

Scientific and Organizing Committee Activities

- 7° International Workshop on *Models and Learning in Clustering and Classification (MBC^2 2024)*, Catania (Italy), August 28-30, 2024 (Chair and Local Organizer).
- International Statistical Conference of the Italian Statistical Society on *Statistical Learning, Sustainability and Impact Evaluation*, Ancona (Italy), June 21-23, 2023 (President of the Scientific Program Committee).
- 6° International Workshop on *Models and Learning in Clustering and Classification (MBC^2 2022)*, Catania (Italy), August 31-September 2, 2022 (Chair and Local Organizer).
- 17th Conference of the *International Federation of the Classification Societies (IFCS 2022)*, Porto (Portugal) July 19-23, 2022 (Member of the Scientific Program Committee).
- 10th Conference International Conference on *Soft Methods in Probability and Statistics (SMPS 2022)*, Valladolid (Spain), September 14-16, 2022 (Member of the Scientific Program Committee).
- 5° International Workshop on *Model Based Clustering and Classification (MBC^2)*, Catania (Italy), September 2-4, 2020 (Chair and Local Organizer).
- Meeting of the Italian Statistical Society on *Smart Statistics for Smart Applications*, Milano (Italy), June 18-21,2019 (Member of the Program Committee)
- *CMStatistics 2018 - 11th International Conference of the ERCIM Working Group on Computational and Methodological Statistics*, Pisa (Italy), December 14-16, 2018 (Member of the Program Commitee).
- 4th International Workshop on *Model-Based Clustering and Classification (MBC^2)*, Catania (Italy), September 5–7, 2016 (Chair and Local Organizer).
- *ECDA 2018 – European Conference on Data Analysis* (Joint conference of Classification Societies: SKAD, GfKl, BCS, CLADAG and EuADS), Padeborn (Germany), July 4-6, 2018, (Member of the Scientific Program Committee).
- *ECDA 2017 – European Conference on Data Analysis* (Joint conference of Classification Societies: SKAD, GfKl, BCS, CLADAG and EuADS), Wroclaw (Poland), September 27-29, 2017, (Member of the Scientific Program Committee).
- 17th Conference of the *International Federation of the Classification Societies (IFCS 2017)*, Tokyo (Japan), August 8-10, 2017 (member of the Scientific Program Committee).
- 3rd International Workshop on *Model-Based Clustering and Classification (MBC^2)*, Catania (Italy), September 5–7, 2016 (Chair and Local Organizer).
- 22nd International Conference on *Computational Statistics (COMPSTAT 2016)*, Oviedo (Spain), August 23–26, 2016 (Member of the Scientific Program Committee).
- International Conference on *Information Complexity and Statistical Modeling in High Dimensions with Applications (IC-SMHD 2016)*, Cappadocia (Turkey), May 18–21, 2016 (Member of the Scientific Program Committee).
- Awards Committee promoted by the *International Federation of the Classification Societies*, 2014-2015 (Chair of the Award Committe).
- 2nd International Workshop on *Model-Based Clustering and Classification (MBC^2)*, Catania (Italy), September 3–5, 2014 (Chair and Local Organizer).
- 9^{th} Scientific Meeting of the "Classification and Data Analysis Group (Cladag) of the Italian Statistical Society", Modena (Italy), September 18–20, 2013, (Member of the Scientific Program Committee).

- International Workshop on *Model-Based Clustering and Classification (MBC^2)*, September 5–7, 2012 (Chair and Local Organizer).
- 8^{th} Scientific Meeting of the "Classification and Data Analysis Group (Cladag) of the Italian Statistical Society", Pavia (Italy), September 7–9, 2011, (Chair of the Scientific Program Committee).
- IEEE International Conference on Data Mining, Beijing, China, 8-11 November 2019 (Member of the Program Committee).
- 7^{th} Scientific Meeting of the "Classification and Data Analysis Group (Cladag) of the Italian Statistical Society", Catania (Italy), September 9–11, 2009, (Local Organizer).
- First school on *Computational statistics and machine learning: finite mixture modeling and model-based cluster analys*, Urgench State University, Urgench, Uzbekistan, May 12-16th, 2025, (member of the Scientific Committee).

Main Research Projects

- Principal Investigator of the Research Unit, Granted Project FIR 2014 (University of Catania) on *Mixture models with covariates: methods and applications for prediction of the corporate financial distress in EU countries*.
- Member of the Granted Project FIRB 2011: *Mixture and latent variable models for causal inference and analysis of socio-economic data* (Principal Investigator: Prof. F. Bartolucci).
- Principal Investigator of the Research Unit of Calabria, Granted Project PRIN 2004 on *Indicators and Statistical Methods for Governance of University*.
- Principal Investigator of the Research Unit of Catania, Granted Project PRIN 2006 on *Statistical Models and Economic relevance for impact analysis with non-linear relationships*.

Main Publications

A. Peer-Reviewed Articles

1. Lachos V.H, Tomarchio S.D, Punzo A., Ingrassia S. (2025). An EM algorithm for fitting matrix-variate normal distributions on interval-censored and missing data, *Statistics and Computing*, Published online: 28 January 2025, https://doi.org/10.1007/s11222-025-10575-0
2. Spinelli D., Ingrassia S., Vittadini G. (2024). Cluster-weighted models using Stata. *The Stata Journal*, **24**(4), 711-745. https://doi.org/10.1177/1536867X241297922.
3. Bassi F., Ingrassia S., Omala S.K., Tognon C. (2024). Schistosomiasis in Uganda: What factors affect mainly the spread of the infection?, *Statistica Applicata - Italian Journal of Applied Statistics*, accepted for publication.
4. Berta P., Ingrassia S., Vittadini G., Spinelli D. (2024), Latent heterogeneity in Covid-19 hospitalizations: a cluster-weighted approach to analyze mortality, *Australian & New Zealand Journal of Statistics*, **66**(1), 1-20.
5. Di Mari R., Ingrassia S., Punzo A. (2023). Local and overall deviance R-squared measures for mixtures of generalized linear models, *Journal of Classification*, **40**(2), 233-266.
6. Di Nuzzo C. , Ingrassia S. (2022). A mixture model approach to spectral clustering and application to textual data, *Statistical Methods & Applications*, **31**(5), 1071-1097.
7. Tomarchio S.D., Ingrassia S., Melnykov V. (2022). Modeling students' career indicators via mixtures of parsimonious matrix-normal distributions, *Australian & New Zealand Journal of Statistics*, **64** (2), 111-116.
8. Punzo A., Ingrassia S., Maruotti A., (2021). Multivariate Hidden Markov Regression Models: Random Covariates and Heavy-Tailed Distributions, *Statistical Papers*, **62**(3), 1519-1555.
9. Sarkar S., Zhu X., Melnykov V., Ingrassia S. (2020). On parsimonious models for modeling matrix data, *Computational Statistics & Data Analysis*, **142**.
10. Ingrassia S., Punzo A. (2020). Cluster validation for mixtures of regressions via the total sum of squares decomposition, *Journal of Classification*, **37**(2), 526-547.
11. Zarei S., Mohammadpour A., Ingrassia S., Punzo A. (2019). On the use of the sub-Gaussian α-stable distribution in the Cluster-Weighted Model, *Iranian Journal of Science and Technology, Transactions A: Science*, **43**(3), 1059-1069.
12. Punzo A., Ingrassia S., Maruotti A., (2018). Multivariate generalized hidden Markov regression models with random covariates: physical exercise in an elderly population, *Statistics in Medicine*, **37**(19): 2797-2808.

13. Garcia-Escudero L.A., Gordaliza A., Greselin F., Ingrassia S.. Mayo-Iscar A. (2018). Eigenvalues and constraints in mixture modeling: geometric and computational issues, *Advances in Data Analysis and Classification*, **12**(2), 203-233.
14. Mazza A., Punzo A., and Ingrassia S. (2018). flexCWM: A Flexible Framework for Cluster-Weighted Models, *Journal of Statistical Software*, **86**(2), 1-30.
15. Fossati L., Marcelja S. E., Staab D., Cubillos P. E., France K., Haswell C. A., Ingrassia S., Jenkins J. S., Koskinen T., Lanza A. F., Redfield S., Youngblood A., Pelzmann G. (2017). The effect of ISM absorption on stellar activity measurements and its relevance for exoplanet studies, *Astronomy & Astrophysics*, **601**, A104.
16. Dang U. J., Punzo A., McNicholas P.D., Ingrassia S., Browne R. P. (2017). Multivariate response and parsimony for Gaussian cluster-weighted models, *Journal of Classification*, **34**(1), 4-34.
17. Garcia-Escudero L.A., Gordaliza A., Greselin F., Ingrassia S., Mayo-Iscar A. (2016). Robust estimation of mixtures of regressions with random covariates, via trimming and constraints, *Statistics and Computing*, **27**(2), 377-402.
18. Berta P., Ingrassia S., Punzo A., Vittadini G. (2016), Multilevel cluster-weighted models for the evaluation of hospitals, *Metron*, **74**(3), 275-292.
19. Ingrassia S., Punzo A. (2016). Decision boundaries for mixtures of regressions, *Journal of the Korean Statistical Society*, **45**(2), 295-306.
20. Punzo A., Ingrassia S. (2016) Clustering Bivariate Mixed-Type Data via the Cluster-Weighted Model, *Computational Statistics*, **31**(3), 989-1013.
21. Garcia-Escudero L.A., Gordaliza A., Greselin F., Ingrassia S., Mayo-Iscar A. (2016). The joint role of trimming and constraints in robust estimation for mixtures of Gaussian factor analyzers, *Computational Statistics & Data Analysis*, **99**, 131-147.
22. Fossati L., Ingrassia S., Lanza A.F. (2015). A bimodal correlation between host star chromospheric emission and the surface gravity of hot-Jupiters, *The Astrophysical Journal Letters*, **812**(2), L35.
23. Subedi S., Punzo A., Ingrassia S., McNicholas P.D. (2015). Cluster-Weighted t-Factor Analyzers for Robust Model-Based Clustering and Dimension Reduction, *Statistical Methods and Applications*, **24**(4), 623-649.
24. Ingrassia S., Punzo A., Vittadini G., Minotti S.C. (2015). The Generalized Linear Mixed Cluster-Weighted Model, *Journal of Classification*, **32**(1), 85-113.
25. Greselin F., Ingrassia S. (2015). Maximum likelihood estimation in constrained parameter spaces for mixtures of factor analyzers, *Statistics and Computing*, **25**(2), 215-226.
26. Ingrassia S., Minotti S.C., Punzo A. (2014). Model-based clustering via linear cluster-weighted models, *Computational Statistics & Data Analysis*, **71**, 159-182.
27. Punzo A., Ingrassia S. (2013). On the use of the generalized linear exponential cluster-weighted model to asses local linear independence in bivariate data, *QdS - Journal of Methodological and Applied Statistics*, **15**, 131-144.
28. Riggi S., Ingrassia S. (2013). A model-based clustering approach for mass composition analysis of high energy cosmic rays, *Astroparticle Physics*, **48**, 86-96.
29. Subedi S., Punzo A., Ingrassia S., McNicholas P.D. (2013). Clustering and Classification via Cluster-Weighted Factor Analyzers, *Advances in Data Analysis and Classification*, **7**(1), 5-40.
30. Ingrassia S., Minotti S.C., Vittadini G. (2012). Local Statistical Modeling via a Cluster-Weighted Approach with Elliptical Distributions, *Journal of Classification*, **29**(3), 363-401.
31. Ingrassia S., Rocci R. (2011). Degeneracy of the EM algorithm for the MLE of multivariate Gaussian mixtures and dynamic constraints, *Computational Statistics & Data Analysis*, **55**(4), 1715-1725.
32. Greselin F., Ingrassia S., Punzo A. (2011). Assessing the pattern of covariance matrices via an augmentation multiple testing procedure, *Statistical Methods and Applications*, **20**(2), 141-170.
33. Greselin F., Ingrassia S. (2010). Constrained monotone EM algorithms for mixtures of multivariate t-distributions, *Statistics and Computing*, **20**(1), 9-22.
34. Ingrassia S., Trinchera L. (2010). Some remarks on nonlinear relationships in PLS Path Modeling, *Statistica Applicata*, **20**(3-4), 197-216.
35. Ingrassia S., Morlini I. (2009). Computational Studies with the equivalent number of degrees of freedom in Neural Networks, *Advances and Applications in Statistics*, **13**(1), 49-81.
36. Cozzucoli P., Ingrassia S., Costanzo G.D., Mazza A. (2008). Indicatori statistici per la valutazione della soddisfazione didattica universitaria, *Rivista di Economia e Statistica del Territorio*, n.3, 77-90.

37. Ingrassia S., Rocci R. (2007). Constrained monotone EM algorithms for finite mixture of multivariate Gaussians, *Computational Statistics & Data Analysis*, **51**, 5339-5351.
38. Cozzucoli P., Ingrassia S. (2006). Indicatori dinamici di efficienza didattica dei corsi di laurea universitari, *Statistica & Applicazioni* (2006), **3**(1), 61-68
39. Ingrassia S., Morlini I. (2005). Modeling neural networks for small datasets, *Technometrics*, **47**(3), 297-311.
40. Ingrassia S. (2004). A Likelihood-Based Constrained Algorithm for Multivariate Normal Mixture Models, *Statistical Methods & Applications*, **13**(2), 151-166.
41. Cavarra S., Crupi V., Guglielmino E., Ingrassia S. (2001). Reti Neurali per la rilevazione di anomalie da dati vibrometrici: un caso studio, *Statistica Applicata*, **13**(1), 5-16.
42. Ingrassia S. (1999). Geometrical aspects of discrimination by multilayer perceptrons, *Journal of Multivariate Analysis*, **68**, 226-234.
43. Gilio A., Ingrassia S. (1998). Totally coherent set-valued probability assessments, *Kybernetika*, **34**(1), 3-15.
44. Ingrassia S. (1997). On the realization of discriminant functions by means of multilayer perceptrons, *Metron*, **LV**(3-4), 185-200.
45. Ingrassia S., Mammana M.L., Commis E. (1997). Internet in Italia: un'indagine statistica, *Annali della Facoltà di Economia dell'Università di Catania*, **XLI**, (1997), 175-199.
46. Torrisi A., Arena G., Bellia G., Falco G., Grasso L., Ingrassia S. (1996). A study of greek pottery and clay statuettes from the votive deposit in the sanctuary of Demetra in Catania, *Annali di Chimica*, **86** (1996), 329-341.
47. Ingrassia S., Commis E. (1994). A neural network approach to defect detection in oranges, *Le Matematiche*, **48**(2), 273-286.
48. Ingrassia S. (1994). On the rate of convergence of the Metropolis algorithm and the Gibbs sampler by geometric bounds, *The Annals of Applied Probability*, **4** (1994)(2), 347-389.
49. Ingrassia S. (1993). Geometric approaches to the estimation of the spectral gap of reversible Markov chains, *Combinatorics, Probability & Computing*, **2**(3), 301-323.
50. Ingrassia S. (1992). A comparison between the simulated annealing and the EM algorithms in normal mixture decompositions, *Statistics and Computing*, **2**, 203-211.
51. Ingrassia S. (1991). Mixture decomposition via the simulated annealing algorithm, *Applied Stochastic Models and Data Analysis*, **7**, n.4, 317-325.

B. Book chapters

52. Scaffidi Domianello K., Di Nuzzo C., Ingrassia S. (2025). On Parameter Estimation of Distributions for Toroidal Data via Contrastive Learning: A Simulation Study, in "E. di Bella, V. Gioia, C. Lagazio, S. Zaccarin (Eds.): SIS 2025, Statistics for Innovation IV", 319-324, Springer, https://doi.org/10.1007/978-3-031-96033-8_52.
53. Di Nuzzo C., Ingrassia S. (2023). Three-way Spectral Clustering, in "Brito P., Dias J.G., Lausen B., Montanari A., Nugent R. (Eds.) *Classification and Data Science in the Digital Age*", Studies in Classification, Data Analysis, and Knowledge Organization, Springer, 111-118.
54. Antonazzo F., Ingrassia S. (2023). A Trivariate Geometric Classification of Decision Boundaries for Mixtures of Regressions, in "Brito P., Dias J.G., Lausen B., Montanari A., Nugent R. (Eds.) *Classification and Data Science in the Digital Age*", Studies in Classification, Data Analysis, and Knowledge Organization, Springer, 21-28.
55. Di Nuzzo C., Ingrassia S. (2023). A graphical approach for the selection of the number of clusters in the spectral clustering algorithm, in "Salvati N., Perna C., Marchetti S., Chambers R. (Eds.) *Studies in Theoretical and Applied Statistics*, (Springer Proceedings in Mathematics & Statistics, 406), ISBN: 978-3-031-16608-2, Springer, 31-44.
56. Di Nuzzo C., Ingrassia S., Vicari D. (2022). An INDSCAL-Type Approach for Three-Way Spectral Clustering, in "Garcia-Escudero L.A., Gordaliza A., Mayo-Iscar A., Lubiano Gomez M.A., Gil M.A, Grzegorzewski P., Hryniewicz O. (Eds.) *Building Bridges between Soft and Statistical Methodologies for Data Science*", Springer, Cham, Switzerland, ISBN 978-3-031-15508-6, 128-135.
57. Di Mari R., Ingrassia S., Punzo A. (2020). A generalized coefficients of determination for mixtures of regressions, in "Chadjipadelis T., Lausen B., Markos A., Lee T.R., Montanari A., Nugent R. (Eds.) *Data Analysis and Rationality in a Complex World*", Springer, forthcoming, ISBN 978-3-030-60103-4.
58. Mazza A., Battisti M., Ingrassia S., Punzo A. (2019). Modeling return to education in heterogeneous populations. An application to Italy, in "Greselin F., Deldossi L., Bagnato L., Vichi M., (Eds.) *Statistical Learning of Complex Data*", Springer, 121-131.

59. Ingrassia S. (2018). Capitale umano: la sfida per lo sviluppo delle regioni del mezzogiorno, in "Brugnoli A., Garrone P. (Eds.), *Sussidiarietà e... giovani al Sud. Rapporto sulla sussidiarietà 2017/2018*", Fondazione per la Sussidiarietà, Milano, ISBN 978-88-97793-25-0.
60. Punzo A., Ingrassia S. (2015). Parsimonious Generalized Linear Gaussian Cluster-Weighted Models, in: "Morlini I., Minerva T., Vichi M. (Eds.), *Advances in Statistical Models for Data Analysis*", Springer, 201-209, ISBN 978-3-319-17376-4.
61. Greselin F., Ingrassia S. (2013). Market segmentation via mixtures of constrained factor analyzers, in "Brentari E., Carpita M. (Eds), *Advances in Latent Variables*", Vita e Pensiero, Milano, ISBN 9788834325568 (Electronic Book).
62. Ingrassia S., Minotti S.C., Incarbone G. (2012). An EM Algorithm for the Student-t Cluster-Weighted Modeling, in "Gaul W., Geyer-Schulz A., Schmidt-Thieme L., Kunze J. (Eds.), *Challenges at the Interface of Data Analysis, Computer Science, and Optimization*", Springer-Verlag, Berlin, 13-21, ISBN 978-3-642-24465-0.
63. Greselin F., Ingrassia S. (2010). Weakly Homoscedastic Constraints for Mixtures of t-Distributions, in "Fink A., Lausen B., Seidel W., Ultsch A. (Eds), *Advances in Data Analysis, Data Handling and Business Intelligence*", Springer-Verlag, Berlin, 2010, 219-228, ISBN 978-3-642-01043-9.
64. Ingrassia S., Morlini I. (2007). Equivalent number of degrees of freedom for neural networks, "Decker R., Lenz H.-J. (Eds.), *Advances in Data Analysis*", Springer-Verlag, Berlin, 2007, 229-236, ISBN 978-3-540-70980-0.
65. S. Ingrassia S., Rocci R. (2006). Monotone constrained EM algorithms for multinormal mixture models, "Zani S., Cerioli A., Riani M., Vichi M. (Eds.), *Data Analysis, Classification and the Forward Search*", Springer-Verlag, Berlin, 2006, 111-118, ISBN 978-3-540-35977-7.
66. Ingrassia S., Morlini I. (2004). On the degrees of freedom in richly parameterised models, in "Antoch J. (Ed.), *Proceedings of COMPSTAT 2004 16th Symposium*", Prague August 23-27, 2004, Physica-Verlag, 1237-1244.
67. Costanzo G.D., Ingrassia S. (2004). Analysis of the MIB30 basket in the period 2000-2002 by functional PC's, in "Antoch J. (Ed.), *Proceedings of COMPSTAT 2004 16th Symposium*", Prague August 23-27, 2004, Physica-Verlag, 831-838.
68. Ingrassia S., Costanzo G.D. (2004). Functional principal component analysis of financial time series, in "Vichi M., Monari P., Mignani S., Montanari A. (Eds.), *New Developments in Classification and Data Analysis*", Springer-Verlag, Berlin, 2005, 351-358.
69. Cerioli A., Corbellini A.. Ingrassia S. (2004). Classificazione simbolica di dati funzionali: un'applicazione al monitoraggio ambientale, in: "Lauro C., Davino C. (a cura di), *Data Mining e Analisi Simbolica*, Franco Angeli Editore, 2004, 31-64.
70. Ingrassia S., Cerioli A., Corbellini A. (2003). Some issues on clustering of functional data, in: "Schader M., Gaul W., Vichi M. (Eds.), *Between Data Science and Applied Data Analysis*", Springer-Verlag, Berlin, 2003, 49-56.
71. Ingrassia S. (2002). Apprendimento per reti MLP, in "*Reti Neuronali e Metodi Statistici*, S. Ingrassia e C. Davino (a cura di)", Franco Angeli Editore, 2002, 63-80.
72. Ingrassia S. (2002). Un'introduzione all'apprendimento statistico, in "*Reti Neuronali e Metodi Statistici*, S. Ingrassia e C. Davino (a cura di)", Franco Angeli Editore, 2002, 11-30.
73. Ingrassia S. (2002). I percettroni multistrato (Reti MLP), in "*Reti Neuronali e Metodi Statistici*, S. Ingrassia e C. Davino (a cura di)", Franco Angeli Editore, 2002, 51-62.
74. Domma F., Ingrassia S. (2001). Mixture models for maximum likelihood estimation from incomplete values, in "S. Borra, R. Rocci, M. Vichi and M. Schader (Eds.), *Advances in Classification and Data Analysis*", Springer-Verlag, 2001, 201-208.
75. Domma F., Ingrassia S. (2001). Un modello per la stima congiunta di arrivi e presenze nelle strutture turistiche, in "*Scelte pubbliche, strategie private e sviluppo economico in Calabria. Conoscere per decidere*", G. Anania (a cura di), Rubbettino Editore, Soveria Mannelli, 2001, 785-802.
76. Gilio A., Ingrassia S. (2000). Extension of totally coherent interval-valued probability assessments, in "B. Bouchon-Meunier, R.R. Yager and L.A. Zadeh (Eds.), *Uncertainty in Intelligent and Information Systems*", World Scientific, 2000, 80-91.
77. Ingrassia S. (1999). Logistic discrimination by Kullback-Leibler type distance measures, in "M. Vichi and O.Opitz (Eds.), *Classification and Data Analysis*", Springer-Verlag, 1999, 89-96.
78. Ingrassia S. (1998). A note on the approximation by superposition of sigmoidal functions, in A. Bellacicco e A. Laforgia (a cura di), *Funzioni Speciali e Applicazioni*, Franco Angeli Editore, 1998, 57-67.
79. Ingrassia S. (1997). Sulle proprietà discriminanti delle trasformazioni sigmoidali, in A. Bellacicco e N.C Lauro (a cura di), *Reti Neurali e Statistica*, Franco Angeli Editore, 1997, 99-108.

C. Presentations in Conferences and Workshops

80. Scaffidi Domianello, L., Ingrassia S. (2024). Contrastive learning: A statistical approach. *Proceedings of the 18th International Joint Conference on Computational and Financial Econometrics (CFE) and Computational and Methodological Statistics (CMStatistics)*, London (UK), 14-16 December, 2024, ISBN 978-9925-7812-8-7, 101
81. Scaffidi Domianello L., Ingrassia S. (2024). On assessing the properties of noise contrastive estimation: a simulation approach, in " Ingrassia S. and Tomarchio S.D., *MBC^2 2024 Book of Abstracts*, Comitato Organizzatore MBC2, Catania, Italy, ISBN: 979-12-210-6784-2, http://mbc2.unict.it/sites/default/files/files/MBC2%202024%20Book%20of%20abstracts.pdf, 9.
82. Spinelli D., Berta P., Ingrassia S., Vittadini G. (2024). A cluster-weighted model for COVID-19 hospital admissions, in "Plaia A., Egidi L., Abbruzzo A. (Eds.) *Proceedings of the Statistics and Data Science 2024 Conference - New perspectives on Statistics and Data Science*", Palermo, April 11-12, 2024, https://unipapress.com/book/proceedings-of-the-statistics-and-data-science-2024-conference/,ISBN: 978-88-5509-645-4, 23-27.
83. Di Nuzzo C., Ingrassia S. (2024). A Simultaneous Spectral Clustering for Three-Way Data, in Plaia A., Egidi L., Abbruzzo A. (Eds.) *Proceedings of the Statistics and Data Science 2024 Conference - New perspectives on Statistics and Data Science*", Palermo, April 11-12, 2024, https://unipapress.com/book/proceedings-of-the-statistics-and-data-science-2024-conference/, ISBN: 978-88-5509-645-4, 90-95.
84. Di Nuzzo C., Ingrassia S. (2023). Maximum likelihood approach to parameter selection in the spectral clustering algorithm, in "Coretto P., Giordano G., La Rocca M., Parrella M.L., Rampichini C. (Eds) *Book of Abstracts and Short Papers. 14th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2023)*", Salerno (Italy), September 11-13, 2023. ISBN 9788891935632, 435-438.
85. Spinelli D., Ingrassia S., Vittadini G. (2023). A Stata implementation of Cluster Weighted Models: the CWMGLM Package, in "Coretto P., Giordano G., La Rocca M., Parrella M.L., Rampichini C. (Eds) *Book of Abstracts and Short Papers. 14th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2023)*", Salerno (Italy), September 11-13, 2023. ISBN 9788891935632, 644-647.
86. Spinelli D., Vittadini G.,Ingrassia S. (2023). A Stata package for Cluster Weighted Modeling, Proceedings of the *RSS International Conference 2023*, Harrogate (UK), 4-7 September 2023, https://virtual.oxfordabstracts.com/#/event/4019/submission/56.
87. Ingrassia S. (2023). Local and overall R-squared measures for mixtures of regression models. in "Grané A., Boj del Val E., Garcia-Escudero L.A., Gordaliza Ramos A., Mayo Iscar A. (EdS) *Book of Abstracts. V International Workshop on Proximity Data, Multivariate Analysis and Classification*, 5° Annual meeting of the SEIO Working Group on *Multivariate Analysis and Classification (AMyC)*, Valladolid, Spain, July 11-12, 2023, http://amyc.uva.es/, ISBN: 978-84-16829-90-3, 14, invited talk
88. Antonazzo F., Ingrassia S. (2022). A trivariate geometric classification of decision boundaries for mixtures of regressions, in "CLAD *Classification and Data Science in the Digital Age* - Book of Abstracts of the 17th Conference of the Classification Societies", Porto (Portugal), July 20-24, 2022, p.159. ISBN 978-989-98955-9-1-
89. Di Nuzzo C., Ingrassia S. (2022). Three-way spectral clustering, in "CLAD *Classification and Data Science in the Digital Age* - Book of Abstracts of the 17th Conference of the Classification Societies", Porto (Portugal), July 20-24, 2022, p.85. ISBN 978-989-98955-9-1-
90. Di Nuzzo C., Ingrassia S. (2022). Spectral approach for clustering three-way data, in "Balzanella A., Bini M., Cavicchia C., Verde R. (Eds.) *Book of Short Papers of the 51st Scientific Meeting of the Italian Statistical Society*, Pisa (Italy), June 21-24, 2022, p.1575-1580.
91. Di Nuzzo C., Ingrassia S. (2021). Some Issues on the Parameter Selection in the Spectral Methods for Clustering, in "Perna C., Salvati N., Schirripa Spagnolo F. (Eds.) *Book of Short Papers of the 50th Scientific Meeting of the Italian Statistical Society*, Pisa (Italy), June 21-24, 2021, ISBN 9788891927361, p.1003-1008
92. Di Nuzzo C., Ingrassia S. (2020). Document classification via a model-based approach to spectral clustering, in "Antonucci L., Kostiuk Y. (Eds.) *Book of Abstracts, Third international conference on Data Science & Social Research*, Bari (Italy), 10-11 December 2020, ISBN 978-886629-051-3, CIRPAS and University of Bari Aldo Moro, p.38.
93. Tomarchio S.D., Ingrassia S., Melnykov V. (2020). Parsimonious matrix normal mixtures: an application to university students indicators, in "Antonucci L., Kostiuk Y. (Eds.) *Book of Abstracts, Third international conference on Data Science & Social Research*, Bari, 10-11 December 2020", ISBN 978-886629-051-3, CIRPAS and University of Bari Aldo Moro, p.41.

94. Di Mari R., Ingrassia S., Punzo A. (2020). Local and overall coefficients of determination for mixtures of generalized linear models, in "Pollice A., Salvati N., Schirripa Spagnolo F. (Eds) *Proceedings of the 50th Scientific Meeting of the Italian Statistical Society*", Pearson, ISBN: 9788891910776, p.157-162.
95. Belov S., Ingrassia S., Kalinić Z., Lula P. (2019). Ontology-based classification of multilingual corpuses of documents, in "Porzio G.C., Greselin F., Balzano S. (Eds) *Book of Short Papers. 12th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2019)*", Cassino (Italy), September 11-13, 2019. ISBN 978-88-8317-108-6, 79-82.
96. Di Mari R., Ingrassia S. (2019). A coefficient of determination for clusterwise linear regression with mixed-type covariates, Proceedings of the *16th Conference of the International Federation of Classification Societies (IFCS 2019)*, Thessaloniki (Greece), 26-29 August 2019.
97. D'Ambrosio A., Conversano C., Ingrassia S. (2019). The ANVUR's system assessing the perceived quality of professors' teaching effectiveness: defining a suitable performance indicator, "Proceedings of the Conference *Innovation and Society 2019 - Statistical Methods for Evaluation*", Roma (Italy), July 4-5, 2019, ISBN: 978-88-86638-65-4, Cuzzolin Editore, Roma, 43-47
98. Ingrassia S., Punzo A. (2018). Total sum of squares decomposition for mixtures of regressions, in "Proceedings of the *11th International Conference of the ERCIM WG on Computing & Statistics (CMStatistics2018)*, ISBN: 978-9963-2227-5-9, Pisa (Italy), December 14-16, 2018; 138.
99. Barberis S., Ingrassia S., Vittadini G. (2018). Generalized additive cluster-weighted models, in "Proceedings of the *11th International Conference of the ERCIM WG on Computing & Statistics (CMStatistics2018)*, ISBN: 978-9963-2227-5-9, Pisa (Italy), December 14-16, 2018; 151.
100. Punzo A., Ingrassia S., Maruotti A. (2017). Multivariate Hidden Markov Regression Models with Random Covariates, in: "Greselin F., Mola F., Zenga M. (Eds.), *Book of Short Papers. 11th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2017)*", Milano, Italy, September 13-15, 2017, Universitas Studiorum S.r.l. Casa Editrice, Mantova; University of Milano-Bicocca, ISBN: 978-88-99459-71-0, paper 93, 1-6.
101. Mazza A., Punzo A., Ingrassia S. (2017). Fitting Cluster-Weighted Models in R, in: "Greselin F., Mola F., Zenga M. (Eds.), *Book of Short Papers. 11th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2017)*", Milano, Italy, September 13-15, 2017, Universitas Studiorum S.r.l. Casa Editrice, Mantova; University of Milano-Bicocca, ISBN: 978-88-99459-71-0, paper 94, 1-5.
102. Mazza A., Punzo A., Ingrassia S. (2017). An R Package for Cluster-Weighted Models, in "Petrucci A., Verde R. (Eds.) *Statistics and Data Science: new challenges, new generations. Proceedings of the Conference of the Italian Statistical Society*", Firenze, June 28-30, 2017, ISBN 978-88-6453-521-0, Firenze University Press, Firenze (Italy), 681-686.
103. Ingrassia S. (2016). Modeling unobserved heterogeneity through finite mixtures: applications, results and perspectives, *10th Professor Aleksander Zelias International Conference on Modelling and Forecasting of Socio-Economic Phenomena*, Zakopane (Poland) May 10-13, 2016. Invited talk for Plenary Session.
104. García-Escudero L., Gordaliza A., Greselin F., Ingrassia S., Mayo-Iscar A. (2015). Robust estimation for mixtures of Gaussian factor analyzers, in "Proceedings of the *8th International Conference of the ERCIM WG on Computing & Statistics (CMStatistics 2015)*" ISBN 978-9963-2227-0-4, London (UK), December 12-14, 2015; 163.
105. Battisti M., Ingrassia S., Mazza A., Punzo A. (2015). Semi-parametric estimation of the rate of return to education. In: Crocetta C. (Eds.), "*Statistics and Demography: the Legacy of Corrado Gini*", CLEUP, Treviso (Italy), September 9-11. ISBN: 978-886787-4521.
106. Ingrassia S. (2015). Eigenvalues and constraints in mixture modeling: geometric, robustness and computational issues, *10th Meeting of the CLAssification and Data Analysis Group (CLADAG)*, Cagliari (Italy), October 8-10, 2015. Invited talk for Plenary Session.
107. Ingrassia S., Murray P.M, McNicholas P.D. (2015). Unsupervised learning mixtures with covariates from incomplete data, *Classification Society Meeting 2015*, McMaster University, Hamilton, Ontario, Canada, June 3-6, 2015. Invited talk.
108. García-Escudero L., Gordaliza A., Greselin F., Ingrassia S., Mayo-Iscar A., Robust model estimation, through trimming and constraints, for mixtures of Factor Analyzers, in "Proceedings of the *7th International Conference of the ERCIM WG on Computing & Statistics (ERCIM'14)*, ISBN: 978-84-937822-4-5, Pisa (Italy), December 6-8, 2014.
109. Ingrassia S., Vittadini G., Berta P., Punzo A.(2014). New statistical approaches for the evaluation of the effectiveness of healthcare structures, in "Proceedings of the *Conference of European Statistics Stakeholders (CESS 2014)*", Roma (Italy), November 24-25, 2014. Invited talk.

110. Ingrassia S., Punzo A. (2014). Diagnostics for model-based clustering via mixture models with covariates, in "Proceedings of the *Second European Conference on Data Analysis (ECDA 2014)*", Bremen (Germany), July 2-4, 2014. Invited talk.
111. García-Escudero L., Gordaliza A., Greselin F., Ingrassia S., Mayo-Iscar A. (2014). An adaptive method to robustify ML estimation in Cluster Weighted Modeling, in " Cabras S., Di Battista T., Racugno W. (Eds.) *Proceedings of the 47th Scientific Meeting of the Italian Statistical Society*, ISBN 978-88-8467-874-4, CUEC, Cagliari (Italy), June 10-14, 2014.
112. Ingrassia S., Punzo A. (2014). Diagnostic tools for data classification via mixture models with covariates, in "Proceedings of the *2014 Annual Meeting of the Statistical Society of Canada*", Toronto (Canada) May, 25-28, 2014. Invited talk.
113. Ingrassia S. (2014). Recent results in model-based clustering via the cluster-weighted approach, in "Proceedings of the *XXI Jornadas de Classificação e Análise de Dado*", Lisbon (Portugal) April 10-12, 2014. Invited talk for Plenary Session.
114. Subedi Dang S., Punzo A., Ingrassia S., McNicholas P.D. (2013). Cluster-weighted models with latent factor analyzer structure, in "Proceedings of 6th International Conference of the *ERCIM WG on Computing & Statistics (ERCIM'13)*", London (UK), December 14-16, 2013, invited talk.
115. Dang U., Ingrassia S., McNicholas P.D. (2013). A family of multiple response parsimonious cluster-weighted models, in "Proceedings of 6th International Conference of the *ERCIM WG on Computing & Statistics (ERCIM'13)*", London (UK), December 14-16, 2013.
116. Gordaliza A., Garcia-Escudero L.A. Greselin F., Ingrassia S., Mayo-Iscar A. (2013). Robustness and asymptotics properties of trimmed cluster-weighted restricted modeling, in "Proceedings of 6th International Conference of the *ERCIM WG on Computing & Statistics (ERCIM'13)*",Senate House, University of London, UK, December 14-16 2013, invited talk.
117. Greselin F., Ingrassia S. (2013). Data driven EM constraints for mixtures of factor analyzers, in "Minerva T., Morlini I., Palumbo F. (Eds). *Book of Short Papers. 9th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2013)*", CLEUP, ISBN: 9788867871179, 245-248.
118. Ingrassia S., Punzo A. (2013). Parsimony in Mixtures with Random Covariates, in "Minerva T., Morlini I., Palumbo F. (Eds). *Book of Short Papers. 9th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2013)*", CLEUP ISBN: 9788867871179, 268-271.
119. Dang U.J., Ingrassia S., McNicholas P.D., Browne R. (2013). Cluster-weighted models for multivariate response and "Minerva T., Morlini I., Palumbo F.(Eds). *Book of Short Papers. 9th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2013)*', ISBN: 9788867871179, 154-157.
120. Ingrassia S. (2013). Flexible Model Based Clustering via the Cluster-Weighted Approach, in "Proceedings of the *2013 Working Group on Model-Based Clustering*, Bologna, Italy, July 21-27, 2013. Invited talk.
121. Ingrassia S. (2013). Flexible Model Based Clustering via the Cluster-Weighted Approach, in "Proceedings of the *2013 Conference of the International Federation of Classification Societies (IFCS 2013)*" , Tilburg (The Netherlands), July 15-17, 2013. Invited talk for Plenary Session.
122. Subedi S., Punzo A., Ingrassia S., McNicholas P.D. (2013). Cluster-weighted-factor Analyzers for Clustering of High-dimensional Data, in "Proceedings of the *2013 Conference of the International Federation of Classification Societies (IFCS 2013)*", Tilburg (Nederlands), July 15-17, 2013; 66.
123. Ingrassia S., Punzo A. (2013). Modeling Bivariate Mixed-Type Data with the Generalized Linear Exponential Cluster-Weighted Model, in "Proceedings of the *2013 Conference of the International Federation of Classification Societies (IFCS 2013)*", University of Tilburg, The Nederlands, July 15-17, 2013.
124. Greselin F., Ingrassia S. (2012). Constrained EM algorithms for Gaussian mixtures of factor analyzers, in "Proceedings of *5th International Conference of the ERCIM WG on Computing & Statistics (ERCIM'12)*", ISBN: 978-84-937822-2-1, Oviedo (Spain), December 1-3, 2012; 34. Invited talk
125. Ingrassia S., McNicholas P., Punzo A., Subedi S. (2012). Cluster Weighted Factor Analyzers, "40th Annual Meeting of the Statistical Society of Canada", Guelph, Ontario, Canada, June 3-6, 2012. Invited talk.
126. Garcia-Escudero L.A., Gordaliza A., Greselin F., Ingrassia S., Mayo-Iscar A. (2013). Trimmed Cluster-Weighted Restricted Modeling, *International Conference on Robust Statistics (ICORS 2013)*, 2013, Saint Petersburg (Russia), July 8-12.
127. Ingrassia S., Minotti S.C., Punzo A. (2011). Parsimonious linear Student-t cluster weighted model, in "Proceedings of the 4th International Conference of the *ERCIM WG on Computing & Statistics (ERCIM'11)*", December 17-19, 2011, Senate House, University of London, UK; 88. Invited talk.

128. Bagnato L., Greselin F., Ingrassia S., Punzo A. (2011). Normal discriminant analysis via the 2-terms eigenvalue decomposition, in "Proceedings of the 4th International Conference of the *ERCIM WG on Computing & Statistics (ERCIM'11)*", December 17-19, 2011, Senate House, University of London, UK; 99-100.
129. Ingrassia S., Minotti S.C., Vittadini G. (2010). A Cluster Weighted Approach to Local Statistical Modeling, in "Proceedings of the XVIII Congresso Anual da Sociedade Portuguesa de Estatística", September 29 - October 2, 2010, S. Pedro do Sul, Portugal. Invited talk.
130. Ingrassia S., Minotti S.C., Vittadini G. (2010). Cluster Weighted Modeling with Student-t components, in "Proceedings of the 45th Scientific Meeting of the Italian Statistical Society", Padova, June 15-18, 2010, http://homes.stat.unipd.it/mgri/SIS2010/Program/8-SSVIII_Cladag/881-1507-1-RV.pdf. Invited talk.
131. Ingrassia S., Rocci R. (2009). Constrained EM trajectories for mixtures of normal distributions, in: "Ingrassia, S., Rocci R. (Eds.), *Book of Short Papers. 7th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2009)*", Catania, Italy, September 9-11, 2008, Cleup, Padova, ISBN: 978-88-6129-406-6, 175-179.
132. Greselin F., Ingrassia S., Punzo A. (2009). Multivariate tests for patterned covariance matrices, in: "Ingrassia, S., Rocci R. (Eds.), *Book of Short Papers. 7th Meeting of the CLAssification and Data Analysis group Meeting (CLADAG 2009)*", Catania, Italy, September 9-11, 2008, Cleup, Padova, ISBN: 978-88-6129-406-6, 529-532.
133. Ingrassia S., Trinchera L. (2008). Some remarks on nonlinear relationships in PLS Path Modeling, *Proceedings of the ISA-RC33 7^{th} International Conference on Social Science Methodology*, Jovene, Napoli, ISBN 88-243-1817-7, Napoli (Italy), September 1-5, 2008. Invited talk.
134. Ingrassia S., Rocci R. (2008). Gaussian mixture models: constrained and penalized approaches, Joint Meeting of the Société Francophone de Classification and the Classification and Data Analysis Group of the Italian Statistical Society, Caserta (SFC-CLADAG 2008), June 11-13, 2008, Edizioni Scientifiche Italiane, Napoli, 59-62.
135. Ingrassia S., Morlini I. (2007). Computational studies with equivalent degrees of freedoms in neural networks, *Book of Short Papers of Cladag 2007*, ISBN: 978-88-6056-020-9, Macerata, September 12-14, 2007, Edizioni Università di Macerata, 559-562.
136. Costanzo G.D., Cozzucoli P., Ingrassia S., Mazza A. (2007). Indicatori di soddisfazione didattica universitaria, Atti Convegno "Valutazione e Customer Satisfaction per la qualità dei servizi", Roma, 12-13 Aprile 2007, Centro Stampa Università di Roma "La Sapienza", 109-112.
137. Ingrassia S., Rocci R. (2007). Degeneracy in the maximum likelihood estimation of multivariate Gaussian mixtures with EM and constrained algorithms, Book of Abstracts of Gfkl 2007 on "Data Analysis, Machine Learning and Applications", Freiburg (Germany), March 7-9, 2007, 85, invited talk.
138. Domma F., Ingrassia S. (2002).A constrained MLE formulation for multinormal mixture decomposition, in "Atti della XLI Riunione Scientifica della Società Italiana di Statistica, Milano, 5-7 Giugno 2002, vol. 2, 371-374.
139. Domma F., Ingrassia S. (2000).Statistical methods and perspectives in neural network training from incomplete data, in "Atti della XL Riunione Scientifica della Società Italiana di Statistica, Firenze 26-28 Aprile 2000, 353-364.
140. Ingrassia S. (1997). Loss functions, multilayer perceptrons and classification problems in "Proceedings of the VIII International Symposium on *Applied Stochastic Models and Data Analysis"*, Anacapri, June 11-14, 1997, Rocco Curto Editore, Napoli, 237-242.
141. Gilio A., Ingrassia S. (1996).Geometrical aspects in checking coherence of probability assessments, *Proceedings of the Sixth International Conference on "Information Processing and Management of Uncertainty in Knowledge-Based Systems" (IPMU '96)*, Granada, July 1-5, 1996, 55-59.
142. Ingrassia S. (1996). Sulla funzione di errore di reti neuronali, in *Atti XXXVIII Riunione Scientifica della Società Italiana di Statistica*, Rimini, 9-13 Aprile 1996, vol. 2, 489-496, Maggioli Editore, Rimini.
143. Ingrassia S., Commis E., Anile A.M. (1994). Defect discrimination in citrus via neural network, in A. Fasano and M. Primicerio (Eds.), *Proocedings of the Seventh European Conference on Mathematics in Industry*, 1994, B.G. Teubner, Stuttgart, 239-246.
144. Ingrassia S. (1994). Alcuni problemi in classificazione automatica di immagini, in *Atti XXXVII Riunione Scientifica della Società Italiana di Statistica*, San Remo, 6-8 Aprile 1994, vol. 2, 113-120, CISU, Roma.
145. Ingrassia S., Commis E. (1993). Some approaches to automatic defect discrimination in oranges, in *Proceedings of the 49th Session of the International Statistical Institute (Contributed papers)*, Firenze, August 25 - September 2, 1993, vol 2, 9-10.
146. Cammarata G., Ingrassia S. *et al.*Variables identification and neural networks for traffic noise, in M.J. Crocker and N.I. Ivanov (Eds.), *Proceedings of International Noise and Vibration Control Conference - NOISE 93*, St. Petersburg, 1993, vol. 4, 149-154.

147. Bisio G., Ingrassia S. *et al.* (1992). Proposal of a correlation for predicting Messina noise pollution levels, in *Proceedings of 6th FASE (Federation of Acoustical Societies of Europe) Congress*, Zurich, 105-108.
148. Ingrassia S. (1991). Dinamiche di aggiornamento su reticoli e analisi statistica di immagini, in S. Zani (a cura di), *Contributi alla Statistica Spaziale*, Università di Parma, 59-67.

D. Books and Journal Editorship

149. Ingrassia S., Tomarchio S.D. (2024). *MBC^2 2024 Book of Abstracts*, Comitato Organizzatore MBC2, Catania, Italy, ISBN: 979-12-210-6784-2, http://mbc2.unict.it/sites/default/files/files/MBC2%202024%20Book%20of%20abstracts.pdf
150. García-Escudero L.-A., Ingrassia S., Murphy T.B. (2024). Special issue on "Advances in Models and Learning for Clustering and Classification" - Preface by the Guest Editors, *Advances in Data Analysis and Classification*, **18**(1), 1-4.
151. Chelli F.M., Ciommi M. Ingrassia S., Mariani F., Recchioni M.C.(Eds.). *SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation. Book of Short papers*, Pearson, 2023, ISBN 9788891935618AAVV.
152. Ingrassia S., Jacques J., Yao W. (2022). Special issue on "Models and Learning in clustering and classification" - Preface by the Guest Editors (part 2), *Advances in Data Analysis and Classification*, **16**(2), 231-234.
153. Ingrassia S., Lin T.-I (2022), Editorial: The 2nd Special issue on Mixture Models, *Econometrics and Statistics*, **22**, 1-2.
154. Ingrassia S., Jacques J., Yao W. (2022). Special issue on "Models and Learning in clustering and classification " - Preface by the Guest Editors (part 1), *Advances in Data Analysis and Classification*, **16**(1), 1-3.
155. Ingrassia S., Punzo A., Rocci R. (Eds.). *Book of Short Papers of the 5th international workshop on Models and Learning for Clustering and Classification MBC2 2020, Catania, Italy*, Ledizioni, Milano, 2021, ISBN: 9788855265393.
156. Biernacki C., Garcia-Escudero L.A., Ingrassia S. (2020). Special issue on "Innovations on model-based clustering and classification" - Preface by the Guest Editors, *Advances in Data Analysis and Classification*, **14**(2), 231-234.
157. Einbeck J., Hinde J., Ingrassia S., Lin T.-I, McNicholas P.D. (2019). The 4th Special Issue on Advances in Mixture Models, *Computational Statistics & Data Analysis*, **132**, 143-144.
158. Frühwirth-Schnatter S., Ingrassia S., Mayo-Iscar A. (2019). Special issue on "Advances on model-based clustering and classification" - Preface by the Guest Editors, *Advances in Data Analysis and Classification*, **13**(1),1-5.
159. Hinde J., Ingrassia S., Lin T.-I, McNicholas P.D. (2017). Special Issue on Mixture Models, *Econometrics and Statistics*, **3**, 89-90.
160. Hinde J., Ingrassia S., Lin T.-I, McNicholas P.D. (2016). The Third Special Issue on Advances in Mixture Models, *Computational Statistics & Data Analysis*, **93**, 2-4.
161. Ingrassia S., McLachlan G.J, Govaert G. (2015). Special issue on "New trends on model-based clustering and classification" - Preface by the Guest Editors, *Advances in Data Analysis and Classification*, **9**(4), 367-369.
162. Bock H.-H., Ingrassia S., Vermunt J.K. (2014). Special issue on "Model-Based Clustering and Classification" - Preface by the Guest Editors (Part 2), *Advances in Data Analysis and Classification*, **8**(1), 1-3.
163. Bock H.-H., Ingrassia S., Vermunt J.K. (2013). Special issue on "Model-Based Clustering and Classification" - Preface by the Guest Editors (Part 1), *Advances in Data Analysis and Classification*, **7**(3), 237-240.
164. Giudici P., Ingrassia S., Vichi M. (Eds.), *Statistical Models for Data Analysis*, Springer, Berlin, 2013.
165. Ingrassia S., Rocci R., Vichi M. (Eds.), *New Perspectives in Statistical Modeling and Data Analysis*, Springer, Berlin, 2011.
166. Ingrassia S., Rocci R. (Eds.), *Book of Short Papers of Cladag 2009*, CLEUP, Padova.
167. Ingrassia S., Davino C. (Eds.), *Reti Neuronali e Metodi Statistici*, Franco Angeli Editore, 2002.

Teaching Experience and Activities

Courses for Ph.D. programs in Statistics

- *Mixture Models*, Ph.D Course in *""Computer Science"* University of Catania (Italy), since 2023.
- *Mixture Models*, Ph.D Course in *""Economics, Management and Statistics"* University of Messina (Italy), 2021

- *An Introduction to Finite Mixture Modeling*, Ph.D Course in *"Statistics"* University of Bologna (Italy), 2014-2015,
- *Estimation Theory*, *Confidence Intervals and Hypotheses Testing*, Joint Research Center of the European Community, Ispra (Italy), School for Graduate and Post-Graduate Training and Education (Italy), Joint Research Center of the European Community, Ispra (Italy), 2007.

Courses for MSc programs (Economics, Mathematics, Statistics),

- *Data Analysis*, *Statistics for Business*, *Statistical Inference*, *Statistical Learning*
  oiffered at the University of Catania and University of Calabria (Italy).

Courses for BSc programms (Economics, Engineering, Mathematics, Statistics)

- *Statistics*, *Probability Theory*, *Statistical Quality Control*,
  offered at the University of Catania and University of Calabria (Italy).

Courses for Professional Workers

- *Data Mining and Neural Networks*, offered at SAS Institute, Italy.

Languages

- Italian (mother tongue), English and French (fluent).