Maurizio Maravalle

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Curriculum Vitae

University education

On November 12th 1968 he takes a mathematics degree with full marks (110/110) at Rome University and he discusses the following thesis "Reconstruction with a in-line computer, of tracks in a sonic spark chamber. Supervisor: Prof. G. Farchi.
The degree thesis has been developed at the Physics Laboratories of ISS.

Scientific activity

His research work has been applied –on a theoretical level- to data multivariate analysis problems particularly to those ones, which are into an overlapping area between statistic and optimization, such as classification- and bound classification problems; on an application level, his research has been addressed to the study of physical environmental systems and especially of economic ones. His work is divided into two main areas: one concerning the study of time series and the other concerning data multivariate analysis.

Time series

He develops some subjects within stationary stochastic processes, which become object of seminars and publications at Rome University (1969). Then he is interested in the approach to time series by spectral analysis bent on the identification of the structure which produces series. In this field he publishes a text (1974) inclusive of calculation problems and some articles about the joint use of multivariate techniques with those ones, which are peculiar of spectral analysis in order to data analysis. He applies to the study of stochastic processes and their representation: According to Box and Jenkins he underlines the modellization aspect and during the *statistics-mathematics* course at L'Aquila University he carries out his own teaching support (1983). From the necessity to operate on theoretical and application level he sets some interesting and innovative methods for seasonal (1981) and seasonal adjustment problems (1998) of time series. He recently carries out a research together with ISTAT about the individuation of methods for the forward valuation of important economics marks (1992 and 1995).

Multivariate analysis

He is in multivariate analysis problems on the occasion of a stage at Direction Scientifique of Sema in Paris, when he has a chance to make contact with the students of Analyse des Données school, which has in J.P. Benzécrì its undisputed Master. He attends the Laboratoire at P. & M. Curie University and he gets in this new area, which –born in the 70^s- has further increased the field of methods at disposal for the study of complex phenomena together with the development of data processing abilities. On his return to Italy he supervises the spreading of one of the first packages of the area (PSD Data Structuring Programs) and he makes a contribution to calculation processes (1970) and their diffusion by including them in the program of a course at O.R. School since 1974. He particularly works about some classification methods applied to the analysis on the territory (1974 and 1976) and he points out that a lot of clustering problems are formally equivalent to optimization problems of graphs best partition type (1976). So he works out an algorithm of best partition of common graphs (1979) which, if they are put into calculation programs, they allow to

compare their soundness and whose performances are still compared successfully (1955) many years from its first original realization.

Membership of Associations

He is a membership of SIS (Italian Statistical Society) since 1972.

Maravalle's recent publications:

1. Maravalle, M. (1990). Geographie politique de l'Italie d'apres les votes aux quatre scrutins nationaux de 1983 aú 1989;[POL-ITALIE]. *Les Cahíers de l'Analyse des Données, Vol.*XV, 1-17
2. Maravalle, M., Simeone B. (1990). A spannìng tree heuristic for regional clustering. *Ricerche -Serie A* - n. 29 - Dipartimento di Statistica, Probabilità e Statistiche Applicate. Università di Roma La Sapienza.
3. Maravalle, M., Badran H. (1994). Géographie politique de l'Italie:Les Referendums d'avril 1993 comparés à des scrutins antérieurs; Les *Cahiers de l'Analyse des Donneés*, Vol. XIX, **4** , pp. 423-442.
4. Maravalle, M., Benedetti, E., Coccìa, M., Parisi M.C. (1996) *Esercizi di Statistica svolti dal Mood, Graybill e Boes*. McGraw-Hill Italia.
5. Maravalle, M., Simeone B. (1995). A Spanning Tree Heuristic for Regional Clustering. *Communications in Statistics* - Theory and Methods, Vol 24,(**3**) pp. 625-640.
6. Maravalle, M., Simeone B., Naldini R. (1997). Clustering on trees - *Computational Statistics & Data Analysis* **24** 217-234.
7. Maravalle, M. (1997) Grawing intersection between time series and data analysis. Lavoro presentato alla Riunione Scientifica del Gruppo di Classificazione aderente all' IFCS-Pescara 3-4 luglio.
8. Ciammola, A., Maravalle, M. (1998). A critical analysis of the logarithmic transformation of economic time series using simulation. *In "Seasonal adjustment procedures – Experiences and prospectives"*. In corso di pubblicazione Istat – Roma.
9. Coccìa, M., Maravalle, M. (1999). Stima anticipata e previsione dell'indice provvisorio della produzione industriale. *In "Modelli e Strumenti per l'Analisi Economica a Breve Termine "*. Annali di Statistica- Anno 128- Serie X-vol.17-335-348. Istat – Roma.
10. Lari S., Maravalle, M., Simeone B. (2003). Computing sharp bounds for hard clustering problems on trees –In press ORSA; special issue on OR and Data Analysis.
11. M. Maravalle (2007) -Introduzione all'analisi dei dati con R - Libreria Universitaria Benedetti – L'Aquila - ISBN 978-88-87182-21-7
12. A. Attanasio, M. Maravalle and C. Marziliano :Convegno CLADAG- Pavia- 7-9 settembre-2011- Different criteria for the optimal number of clusters- An application to extra-virgin oil data with R. ISBN: 978-88-90663901
13. M. Maravalle (2009) THE EVALUATION OF SERVICES IN THE PRESENCE OF MIXED VARIABLES (QUALITATIVE / quantitative). An approach using the methods of data analysis and application to a Regional Health Plan.Meeting su metodi e politiche per la valutazione dei servizi (IES2009).Brescia, 24-26 giugno -ISBN 978-88-88971-17-9
14. I. Lari, M. Maravalle, B. Simeone (2009)- Computing sharp bounds for hard clustering problems on trees Discrete Applied Mathematics, Volume 157, Issue 5, 6 March 2009, Pages 991-1008 ISSN 0166-218X
15. M.Maravalle,F. Ricca, V. Spinelli & B. Simeone (2011) .Quaderni di Statistica. Carpal tunnel syndrome automatic classification: electromyography vs. ultrasound imaging. University La Sapienza – Rome – Italy.
16. M. Maravalle et alii (2012) Continuous Glucose Monitoring during Breastfeeding in women with recent gestational diabetes mellitus - *Diabetes Technology and Therapeutics.* – ID DIA-2011-0266.R3
17. A. Attanasio, M. Maravalle e G. Fioravanti. (2012) Examining Granger causality between atmospheric parameters and radon -Natural Hazards -DOI 10.1007/s11069-012-0104-x