

CURRICULUM VITAE



PERSONAL INFORMATION

Surname(s) / First name(s) **Muselli Marco**
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Nationality(-ies) **Italian**

Date of birth **17 January 1962**

Gender **Male**

WORK EXPERIENCE

- Dates **1 February 1988 – today**
- Occupation or position held **Senior researcher**
- Main activities and responsibilities **Project unit responsible, Coordinator of a research group on Advanced Statistics and Machine Learning, System and Network Manager**
- Name and address of employer **Institute of Electronics, Computer and Telecommunication Engineering (IEIIT) – Italian National Research Council (CNR) – via De Marini, 6 – 16149 Genoa, Italy**
- Type of business or sector **Public research institution**

EDUCATION AND TRAINING

- Dates **5 November 1980 – 7 November 1985**
- Title of qualification awarded **M.Sc. Degree in Electronic Engineering**
- Principal subjects / Occupational skills covered **Probability Theory, Statistics, Computer Science, Electronics**
- Name and type of organisation providing education and training **University of Genoa, Italy**
- Level in national or international classification (if relevant)

PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE(S) **Italian**

OTHER LANGUAGE(S)

SELF-ASSESSMENT

EUROPEAN LEVEL (*)

ENGLISH

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
Very good	Very good	Good	Good	Very good

(*) *Common European Framework of Reference (CEF) level*

SOCIAL SKILLS AND COMPETENCES

- Participation and coordination of national and international research groups for:
- production of scientific publications in principal journals on advanced statistics and

- machine learning,
- realization of interdisciplinary scientific projects in the application of statistics to the field of life sciences

Participation and coordination of voluntary services for:

- pedagogical and educational activities,
- assistance in a multi cultural environment.

In all these activities good organization and communication skills, especially towards people with no statistical background, are essential abilities.

ORGANISATIONAL SKILLS AND COMPETENCES

- Coordinator of a research group in advanced statistics and machine learning since 1994.
- Coordinator of the CNR research activity "Machine Learning for Biological Data" since 2007.
- Research unit responsible of the Italian MIUR Flagship project "InterOmics" (2012–2015).
- Coordinator of the CNR project "Machine Learning Techniques for Modelling and Growing Up" (2004–2009).
- Research unit responsible of the Italian MIUR – FIRB project "Interdisciplinary Laboratory of Bioinformatics Technologies (LITBIO)" (2005–2010).
- Research unit responsible of the coordinated CNR project "New Algorithms and Methodologies for the Approximated Solution of Nonlinear Functional Optimization Problems in a Stochastic Environment" (2001).
- Teacher of the course "Functional Bioinformatics I" at the School of Physics of the Genoa University.
- Teacher of the Ph.D. course "Machine Learning" at the Genoa University.

TECHNICAL SKILLS AND COMPETENCES

- 20 year experience of statistical techniques adopted for observational studies, risk assessment and decision analysis.
- 20 year experience of methods for data mining and knowledge extraction from experimental data: statistical inference methods (parametric and non parametric), statistical learning techniques (neural networks, radial basis function, support vector machine, ...), rule generation algorithms.
- 15 year experience in experimental design, multiple testing and non linear mixed effects modelling.
- 15 year experience in the process and analysis of large datasets, mainly deriving from life sciences.
- 20 year experience in statistics applied to life sciences.
- 20 year experience of mathematical tools employed in probability theory and statistics, in particular, in the convergence analysis of stochastic processes and in the theoretical evaluation of the quality of statistical estimates.
- 20 year experience in the theory and application of statistical learning.
- 15 year experience of methodologies for system identification and optimal control in a stochastic environment.

COMPUTER SKILLS AND COMPETENCES

- Sound knowledge of some standard statistical and/or modelling software, among which SPSS, SAS, Matlab, R, Maple.
- Sound knowledge of data capture systems and data management tools.
- System and network manager for CNR from 1995 to 2002.
- Head of CNR division "Data Processing Systems" from 1995 to 2002.
- 25 year experience in the development of efficient algorithms for the solution of problems with high computational complexity.
- 25 year experience of principal programming languages, including C, Fortran, and Pascal.
- Good knowledge of the operating systems Windows and Linux.

OTHER SKILLS AND COMPETENCES

- Invited speaker in several scientific conferences and seminars.
- Referees for many journals in the area of Statistics, Probability Theory and Computer Science
- Author or co-author of more than 100 scientific publications, many of which on important international journals.

RECENT PUBLICATIONS

- D. CANGELOSI, M. MUSELLI, S. PARODI, F. BLENGIO, P. BECHERINI, R. VERSTEEG, M. CONTE, L. VARESIO Use of Attribute Driven Incremental Discretization and Logic Learning Machine to build a prognostic classifier for neuroblastoma patients. *BMC Bioinformatics* 15(Suppl 5):S4 (2014).
- D. CANGELOSI, F. BLENGIO, R. VERSTEEG, A. EGGERT, A. GARAVENTA, C. GAMBINI, M. CONTE, A. EVA, M. MUSELLI, L. VARESIO Logic Learning Machine creates explicit and stable rules stratifying neuroblastoma patients. *BMC Bioinformatics* 14:S12 (2013).
- M. MORDENTI, E. FERRARI, E. PEDRINI, N. FABBRI, L. CAMPANACCI, M. MUSELLI, L. SANGIORGI Validation of a New Hereditary Multiple Exostoses Classification Through Switching Neural Networks. *American Journal of Medical Genetics* 161 (2013) 556–560.
- S. PARODI, M. MUSELLI, B. CARLINI, V. FONTANA, R. HAUPT, V. PISTOIA, M.V. CORRIAS Restricted ROC curves are useful tools to evaluate the performance of tumour markers. *Statistical Methods in Medical Research* (2012) DOI: 10.1177/0962280212452199.
- R. MANGERINI, P. ROMANO, A. FACCHIANO, G. DAMONTE, M. MUSELLI, M. ROCCO, F. BOCCARDO, A. PROFUMO The application of atmospheric pressure matrix-assisted laser desorption/ionization to the analysis of long-term cryopreserved serum peptidome. *Analytical Biochemistry* 417 (2011) 174–181.
- M. MUSELLI, A. BERTONI, M. FRASCA, A. BEGHINI, F. RUFFINO, G. VALENTINI A mathematical model for the validation of gene selection methods. *IEEE/ACM Transactions on Computational Biology and Bioinformatics* 8 (2011) 1385–1392.
- M. MUSELLI, E. FERRARI Coupling Logical Analysis of Data and Shadow Clustering for partially defined positive Boolean function reconstruction. *IEEE Transactions on Knowledge and Data Engineering* 23 (2011) 37–50.
- C. CERVELLERA, D. MACCIÒ, M. MUSELLI Functional optimization through semi-local approximate minimization. *Operations Research* 58 (2010) 1491–1504.
- C. CERVELLERA, D. MACCIÒ, M. MUSELLI Efficient global maximum likelihood estimation through kernel methods. *Neural Networks* 23 (2010) 917–925.
- M. MUSELLI, M. COSTACURTA, F. RUFFINO Evaluating gene selection methods through artificial and real expression data. *Artificial Intelligence in Medicine* 45 (2009) 163–171.
- E. C. CARCANO, P. BARTOLINI, M. MUSELLI, L. PIRODDI Jordan recurrent neural network versus IHACRES in modelling daily streamflows. *Journal of Hydrology* 362 (2008) 291–307.
- S. PARODI, V. PISTOIA, M. MUSELLI Not proper ROC curves as new tool for the analysis of differentially expressed genes in microarray experiments. *BMC Bioinformatics* 9:410 (2008).
- C. CERVELLERA, D. MACCIÒ, M. MUSELLI Deterministic learning for maximum likelihood estimation through neural networks. *IEEE Transactions on Neural Networks* 19 (2008) 1456–1467.
- F. RUFFINO, M. MUSELLI, G. VALENTINI Gene expression modeling through positive Boolean functions. *International Journal of Approximate Reasoning* 47 (2008) 97–108.
- C. CERVELLERA, M. MUSELLI Efficient sampling in approximate dynamic programming algorithms. *Computational Optimization and Applications* 38 (2007) 417–443.
- C. M. ROCCO, M. MUSELLI Approximate multi-state reliability expressions using a new machine learning technique. *Reliability Engineering and System Safety* 89 (2005) 261–270.
- S. PARODI, A. IZZOTTI, M. MUSELLI Re: The central role of Receiver Operating Characteristic (ROC) curves in evaluating tests for the early detection of cancer. *Journal of the National Cancer Institute* 97(3) (2005) 234–235.