



Europass Curriculum Vitae



Personal information

First name(s) / Surname(s) **Giuseppina C. Gini**
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Nationality Italian

Work experience

Dates	November 2014 – now
Occupation or position held	Consultant and Contract Professor of Computer Science
Main activities and responsibilities	Research and teaching in undergraduate and graduate classes. Main scientist in research projects. Advisor of Ph.D. and Master students.
Name and address of employer	Politecnico di Milano, Department of Electronics and Information Piazza L. da Vinci 32, Milano, Italy
Type of business or sector	University
Dates	November 1987 – November 2014
Occupation or position held	Associate Professor of Computer Science
Main activities and responsibilities	Research and teaching in undergraduate and graduate classes. Responsibilities in graduate admission and curricula evaluations. Main scientist in research projects. Organization of scientific events and symposia.
Name and address of employer	Politecnico di Milano, Department of Electronics and Information Piazza L. da Vinci 32, Milano, Italy
Type of business or sector	University
Type of business or sector	University
Dates	November 1981 - November 1987
Occupation or position held	Tenured Assistant Professor
Main activities and responsibilities	Research and teaching in undergraduate and graduate classes. Jointly visiting scientist in Stanford University Medical School for research projects.
Name and address of employer	Politecnico di Milano, Department of Electronics and Information Piazza L. da Vinci 32, Milano, Italy
Type of business or sector	University
Dates	September 1976 – October 1981
Occupation or position held	Senior Research associate
Main activities and responsibilities	Research and teaching.

Name and address of employer | Joint appointment from Istituto di Elettronica, Politecnico di Milano, Milan, Italy and SAIL (Stanford Artificial Intelligence Laboratory), Stanford University, Stanford, CA, USA

Type of business or sector | University

Dates | **September 1972 – August 1976**

Occupation or position held | Research associate

Main activities and responsibilities | Research in computer science and Artificial Intelligence

Name and address of employer | Istituto di Elettrotecnica e Elettronica, Politecnico di Milano, Milan, Italy

Type of business or sector | University

Education and training

Dates | **September 1972**

Title of qualification awarded | CNR summer school in Computer Science certificate

Principal subjects/occupational skills covered | Theoretical computer science and computer languages

Name and type of organisation providing education and training | Consiglio Nazionale delle Ricerche (Italian National Research Council)

Dates | **1966-1971**

Title of qualification awarded | Doctor in Physics

Principal subjects/occupational skills covered | Physics and Electronics

Name and type of organisation providing education and training | Università degli Studi di Milano, Faculty of Sciences

Dates | **1960-1965**

Title of qualification awarded | High School graduation in Humanities

Principal subjects/occupational skills covered | Languages and literature (Italian, Latin, antique Greek, French,), philosophy, history, science, mathematics, and physics.

Name and type of organisation providing education and training | Liceo Ginnasio “Giuseppe Parini” of Milan (Italy)

Personal skills and competences

Mother tongue(s) | **Italian**

Other language(s)

Self-assessment
European level (*)

English

French

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C1	C1	C1	C1	C1
C1	C1	C1	C1	B2

(*) Common European Framework of Reference for Languages

I often worked in research teams, in particular in the “hand-eye” robotics project of the **Stanford University – SAIL** and in the “protean” project, of the **Stanford medical school**, about protein secondary structure.

I won the following **grants**:

- NATO-CNR fellowship, 1985-1986, with Prof. O. Jardetzky, Stanford University;
- CNR international fellowship for research at SRI International, summer 1982;
- Fulbright-Hays grant and NATO fellowship, AI Laboratory, Stanford University, 1979- 1980;
- NATO grant for research at the AI Laboratory, Stanford University, 1976 - 1977;
- Fellowship from CNR for research at Politecnico di Milano, 1972-1973.

Principal investigator and research director of the research projects:

- PROSIL from EU, 2013-2016, “New assessments methods for large molecules”.
- CALEIDOS from EU, 2013-2015, “Evaluation of REACH submissions with QSAR” .
- QSAR methods for REACH (in Italy), National Health Department (Italy), 2011-2012.
- ANTARES from EU, 2010-2012, “Assessment of in-silico methods for REACH”.
- ORCHESTRA from EU, 2009-2011, “Exploitation of results from in-silico projects”.
- RAINBOW from EU, 2006-2007, “Combining in vivo, in vitro, in silico”.
- CAESAR from EU, 2005-2009, “In silico methods for REACH”.
- ION from EU, 2004-2006, “Ion channel screening system for drug discovery”.
- Alenia for ASI, 2004-2005, “Space robotics”.
- DEMETRA, of EU, 2003-2005, “Prediction portal for pesticides toxicity”;
- EASYRING, of EU, 2003-2005, “Biosensors”;
- Fatealchem, of EU, 2002-2004, “Prediction of natural toxins in plants”;
- OpenMolgrid, of EU, 2002-2004, “GRID computing for science and chemistry”;
- IMAGETOX , EU training network for Toxicity Prediction, 2000-2003;
- PRASSI from MURST in the special program with ENEA for robot auto-location, 1999-2001;
- SIRO from MURST in the special program with ENEA for robot simulation, 1999-2001;
- COMET, of EU, 1998-2000, “Computerized expert systems for Toxicology”;
- NATO Collaborative Research Grant, 1998-1999, “Molecular descriptors and advanced computing in carcinogenicity prediction”;
- Grant from CNR (Italian National Research Council), 1997, “Robot Planning”;
- CROMATICA of EU, 1996-99, “Crowd monitoring in public transportation”;
- EST 1094 of EU, 1995 -1998, “Hybrid systems for toxicology”;
- MURST (Italian Department of University and Research) grant, 1992-1993, “Robots in maintenance operations”;
- CNR (Italian National Research Council) grant, 1991, “Reactive Planning”;
- MURST grant, 1990-1991, “Constraint- based languages”;
- Grant from Computing Center, Politecnico di Milano, 1990-1991, “Intelligent tutors”;
- CNR grant, 1989-1992, “Qualitative Systems” and “Robot programming and planning”;

Besides the projects as above indicated, I co-directed a 2-years project with San Raffaele Hospital, in Milano, to devise improvements in the managing of patients and visitors

Program Committee Chair and Member

Italian delegate in the management Committee of the COST action 282, European Science Foundation, on data mining in scientific data bases, 2001-2004.

Organized and chaired for *Politecnico* the videoconference on “Machine vision and machine-human interface in advanced robotics for manufacturing”, between MIT, Politecnico di Milano, and Parco Scientifico di Marghera, March 14, 2000.

Organizer and chairman of the special sessions:

- “Knowledge exploration for predictive toxicity of chemicals”, 6th International Symposium on Artificial Intelligence and Mathematics (Jan. 5-7, 2000, Ft. Lauderdale, Florida).
- “Data Mining and Knowledge Management for Scientific Data” for KES Conference, Crema (Italy) September 2002.

Chairman of the AAAI Spring Symposium on Predictive Toxicology, Stanford (CA), March 1999. In the Program Committee of International Conferences as for example: Robotics Europe 1984, ISIR (1982, 1986), NATO Workshop Robotics 1988, Predictive Toxicology Challenge 2001, RoboCup symposium (2006 to 2011), SETAC Europe 2011, CIMTEC 2012, MLDMit 2013, PAI 2013, ICINCO (2014 to 2016), IJCAI-DC (2015, 2016), SIMPAR (2008, 2010, 2012, 2016), UKCI (2014, 2015), AAMAS-DC 2016, and Associated Editor of IROS (2012 to 2014).

EEC Panels Member

A member of the ECC panels to plan the ESPRIT Program in CIM. Member of the “International Robotics Standardization Europe”, and of SIG 7. I served as *Expert* for the UE in the evaluation of research proposals for the program MAST for Marine research and Technology, November 1996.

Technical skills and competences

RESEARCH THEMES

My research themes are at the intersection between AI, computational intelligence, bioinspired machines and robotics.

I started my research in the symbolic AI approach, namely in knowledge representation, planning, expert systems, AI languages, and constraint satisfaction systems. Then I moved to sub-symbolic approaches and in particular to neural networks. More recently I investigated hybrid systems architectures, combining rules and soft computing; I developed data mining methods. The main application area of those methods is modelling and prediction in life sciences, especially toxicity prediction and drug discovery.

To approach human-machine interaction I mainly developed intelligent and bioinspired machines, using compliant materials and controllers, and approaching a full neural-based perceptual and motor system. The main application areas are rehabilitation robotics and cooperative robotics.

I am in the Editorial board of a few Journals, a highlighted reviewer for ACM Computing Reviews, a referee for many International Journals and Conferences.

I authored or co-authored more than 270 papers and books.

I have been thesis advisor for a few hundred students in Master and PhD at Politecnico di Milano.

Computer skills and competences

- Technical skills: programming languages (Pascal, BASIC, FORTRAN, C, LISP). I have developed open source applications.
- Algorithms and methods developed in: machine learning and data mining, computer vision and robotics, pattern recognition and predictive model, DSS systems.

Additional information

Fellow of ASP (Alta Scuola Politecnica), graduate school of excellence of Politecnico di Milano and Politecnico di Torino, since 2012.

Award from Doerenkamp-Zbinden Foundation for Alternatives in Biomedicine (Switzerland), for the poster "ORCHESTRA: a new EC project to link the research of in silico models with user needs", by E. Benfenati, G. Gini, I. Malerba, presented at the 7th World Congress on Alternatives and Animal Testing in Life Science, Roma, 30 August-2 September 2009.

Award for scientific activity, Politecnico di Milano, years 1976-1981.

Award from Politecnico di Milano for integrative didactic projects, 2000-2001.

Publications

More information and a complete list of publications on my personal page:

<http://home.deib.polimi.it/gini>

Publications of the last 5 years

2019
G. Gini, T. Ferrari, A. Lombardo, A. Cassano, E. Benfenati "A New QSAR Model for Acute Fish Toxicity based on Mined Structural Alerts". <i>J Toxicol Risk Assess</i> 5:016. doi.org/10.23937/2572-4061.1510016
N. Vitucci, G. Gini, "Reasoning on objects and grasping using description logics", <i>Advanced Robotics</i> , 2019, doi: 10.1080/01691864.2019.1638452
M Folgheraiter, A Keldibek, B Aubakir, G Gini, AM Franchi, M Bana, "A neuromorphic control architecture for a biped robot", <i>Robotics and Autonomous Systems</i> , 2019, https://doi.org/10.1016/j.robot.2019.07.014
E. Benfenatia, Q. Chaudhry, G. Gini, J. L. Dorne, "Integrating in silico models and read-across methods for predicting toxicity of chemicals: A step-wise strategy", <i>Environment international</i> , 131, 2019 https://doi.org/10.1016/j.envint.2019.105060
G. Gini, F. Zanoli, A. Gamba, G. Raitano, E. Benfenati, "Could deep learning in neural networks improve the QSAR models?", <i>SAR and QSAR in Environmental Research</i> 30(9), 617-642, Taylor & Francis, 2019/9/2.
G. Gini, F. Zanoli, A. Gamba, A. Golbamaki, G. Raitano, "Could deep learning in neural networks improve the QSAR models? , <i>CMTPI 2019 (10th International Symposium on Computational Methods in Toxicology and Pharmacology Integrating Internet Resources)</i> OL3, 23-27 June 2019, Ioannina (Greece) (abstract)
G. Gini, "Guest editorial preface - Special Issue on Application of Machine Learning theories in QSAR/QSPR", <i>International Journal Quantitative Structure Property Relationships</i> , 4(4) 2019.
G. Gini, "The QSAR similarity principle in the deep learning era: confirmation or revision?", 23 rd Annual Conference of the International Society for the Philosophy of Chemistry, Torino (Italy) 15-17 July 2019

(abstract)
2018
G. Gini "QSAR, what else?", in O. Nicolotti (Editor) Computational Toxicology: Methods and Protocols, Methods in Molecular Biology, Springer, Clifton, NJ, June 2018;1800: 79-105. doi: 10.1007/978-1-4939-7899-1_3.
D. Rivela, A. Scannella, C. Frigo, E. Pava, P. Belluco, G. Gini, "Analysis and comparison of features and algorithms to classify shoulder movements from sEMG signals, <i>IEEE Sensors Journal</i> , May 2018, Vol 18, N 9, pp 3714-3721, DOI 10.1109/JSEN.2018.2813434 .
M. Persiani, A. M. Franchi, G. Gini, "A working memory model improves cognitive control in agents and robots", <i>Cognitive Systems Research</i> , Vol 51, p 1-13, October 2018, DOI 10.1016/j.cogsys.2018.04.014 .
E. Benfenati, G. Raitano, A. Roncaglioni, S. Manganelli, F. Lemke, U. Norinder, E. Lo Piparo, M. Honma, A. Manganaro, G. Gini, "Making the prediction of the AMES test useful for industry: a combined approach", 18 th International Conference on QSAR, ISBN 978-961-6104-38-8, Bled, Slovenia, June 2018, (abstract) p. 31.
E. Benfenati, A. Golbamaki, G. Raitano, A. Roncaglioni, S. Manganelli, F. Lemke, U. Norinder, E. Lo Piparo, M. Honma, A. Manganaro, G. Gini, "A large comparison of integrated SAR/QSAR models of the Ames test for mutagenicity", <i>SAR and QSAR in environmental research</i> 29:8, 591-611, 2018.
M. Folgheraiter, A. Yessaly, G. Kaliyev, A. Yskak, S. Yessirkepov, A. Oleinikov, G. Gini, "Computational Efficient Balance Control for a Lightweight Biped Robot with Sensor Based ZMP Estimation", Proc 2018 IEEE-RAS 18th International Conference on Humanoid Robots, November 6-9, 2018, Beijing, China. DOI: 10.1109/HUMANOIDS.2018.86250
F. Zanoli, M. Colombetti, G. Gini, "Deep neural networks to predict mutagenicity of molecules and to get understanding about possible reasons of toxicity", MLDM 2018, Trento (abstract)
2017
A. Golbamaki, E. Benfenati, S. Manganelli, A. Manganaro, A. M. Franchi, G. Gini, "ToxDelta: A new program to assess how dissimilarity affects the effect of chemical substances". <i>Drug Designing</i> , OMICS PUBLISHING GROUP. accepted on Oct 04, 2017
G. Gini, L. Mazzon, S. Pontiggia, P. Belluco, "A classifier of shoulder movements for a wearable EMG-based device", <i>Journal of Medical Robotics Research</i> , Vol 02, N. 02, 2017, DOI: 10.1142/S2424905X17400037 .
A. Golbamaki, A. M. Franchi, G. Gini, "The Maximum Common Substructure (MCS) search as a new tool for SAR and QSAR", In: K. Roy (Editor) Advances in QSAR modeling - Applications in Pharmaceutical, Chemical, Food, Agricultural and Environmental Sciences, Springer International Publishing, 2017, p 149-166, DOI 10.1007/978-3-319-56850-8 . ISBN 978-3-319-56849-2
K. Bouhedjar, S. Manganelli, G. Gini, A. A. Toropov, A. P. Toropova, S. Ali-Mokhnache, D. Messadi "QSAR Modeling useful in Anti-Cancer Drug Discovery: Prediction of ^{v600} EBRAF-Dependent P-ERK using Monte Carlo Method", <i>Journal of Medical Chemistry and Toxicology</i> , 2 (1), p 1-6, March 2017.
2016
E. Benfenati, M. Belli, T. Borges, E. Casimiro, J. Cester, A. Fernandez, G. Gini, M. Honma, M. Kinzl, R. Knauf, A. Manganaro, E. Mombelli, M. I. Petoumenou, M. Paparella, P. Paris, G. Raitano, "Results of a round-robin exercise on read-across", <i>SAR and QSAR in environmental research</i> , 2016 May; 27(5):371-84. doi: 10.1080/1062936X.2016.1178171 .
A. M. Franchi, F. Mutti, G. Gini, "From learning to new goal generation in a bioinspired robotic setup", <i>Advanced Robotics</i> , 2016, DOI 10.1080/01691864.2016.1172732 .
A. Golbamaki, E. Benfenati, N. Golbamaki, A. Manganaro, E. Merdivan, A. Roncaglioni, G. Gini, "New clues on carcinogenicity-related substructures derived from mining two large datasets of chemical compounds", <i>Journal of Environmental Science and Health, Part C</i> , 2016. DOI 10.1080/10590501.2016.1166879 .
G. Gini. "QSAR methods", in E. Benfenati (ed) In silico methods for predicting drug toxicity, Springer series Methods in Molecular Biology, Clifton, N.J. 2016, ISBN: 978-1-4939-3607-6, p 1-20. Published on 01 Jan 2016, DOI: 10.1007/978-1-4939-3609-0_1 .
G. Gini, A. M. Franchi, F. Ferrini, F. Gallo, F. Mutti, R. Manzotti, "Bioinspired classification in the architecture of situated agents", in E. Menegatti, N. Michael, K. Berns, H. Yamaguchi (Eds.), <i>Intelligent Autonomous Systems 13</i> , Advances in Intelligent Systems and Computing 302, Springer, p 577-590, 2016.
G. Gini, P. Belluco, F. Mutti, D. Rivela, A. Scannella "Towards a natural interface for the control of a whole arm prosthesis", in Bleuler et al (Eds) New trends in medical and service robots, (MESROB 2014, Lausanne, July 2014), Springer 2016, p 47-60.
A. M. Franchi, L. Sernicola, G. Gini, "Linguistic Primitives: a New Model for Language Development in

Robotics”, E. Tuci et al. (Eds.): SAB 2016, Springer International Publishing Switzerland ,LNAI 9825, pp. 207–218, 2016. DOI: 10.1007/978-3-319-43488-9 19
G. Gini, M. Bana, M. A. Franchi, A. Keldbek, M. Folgheraiter, “Learning and executing rhythmic movements through chaotic neural networks: a new method for walking humanoid robots”, International Symposium on Robotics (47 : 2016: München) Berlin: VDE Verlag, June 2016, ISBN: 978-3-8007-423, p 528-533.
M. Folgheraiter, A. Keldibek, B. Aubakir, S. Salakchinov, G. Gini, A. M. Franchi, “ A Neuromorphic Motion Controller for a Biped Robot”, in Human Performance and Robotics Workshop, Humanoids 2016, November 15, Cancun, Mexico, 2016.
M. Folgheraiter, A. Keldibek, B. Aubakir, S. Salakchinov, G. Gini, A. M. Franchi, M. Bana” Development of a Low-cost Humanoid Robot with Neuromorphic Control System”, Proc International Conference on Information Technology and Digital Applications (ICITDA), Yogyakarta, Indonesia, IOP Conference Series: Materials Science and Engineering (MSE) 2016.
M. Persiani, A.M. Franchi, G. Gini, “From working memory to cognitive control: presenting a model for their integration in a bio-inspired architecture”, Proceedings of EUCognition 2016 - "Cognitive Robot Architectures" - CEUR-WSEUCognition 2016 conference in Vienna”, 8-9 December 2016, p 67 (abstract).
N. Vitucci, A. M. Franchi, G. Gini , “Programming a humanoid robot in natural language: an experiment with description logics”, Workshop Simulation in robot programming, SIMPAR 2016, San Francisco, December 2016. ISBN 978-88-95872-04-9
2015
E. Benfenati, A. Roncaglioni, M. Petoumenaou, C. Cappelli, G. Gini, “Integrating QSAR and read across for environmental assessment, SAR QSAR in environmental research, 2015; 26(7-9):605-18. DOI: 10.1080/1062936X.2015.1078408. Epub 2015 Sep 11.
A. M. Franchi, D. Attuario, G. Gini “The Organization of Cortex-Ganglia-Thalamus to Generate Movements From Motor Primitives: a Model for Developmental Robotics,Proc. AIRO, AI*IA Conference, Ferrara, 2015. CEUR vol 1544, p 104-115.
D. Rivela, A. Scannella, E. Pavan, C. Frigo, P. Belluco, G. Gini, “Processing of surface EMG through pattern recognition techniques aimed at classifying shoulder joint movements”, 37 annual international conference of the IEEE engineering in medicine and biology society, Milan August 2015, p 2107-2110.
E. Benfenati, M. Petoumenou, A. Roncaglioni, F. Como, A. Manganaro, A.M. Franchi, G. Gini “A new tool to explore reasons of adverse effects, within a read across perspective”, SETAC 2015, Barcellona (abstract).
E. Benfenati, A. Roncaglioni, M. Petoumenaou, C. Cappelli, G. Gini, “Integrating QSAR and read across for environmental assessment, 8th Int Symposium on Computational Methods in Toxicology and Pharmacology Integrating Internet Resources (CMTPI.2015), Chios (Greece, June 21-25, 2015, p 34, (abstract).