

Marco Gori

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Education

- Ph.D Univ. of Bologna (1990), "Neural networks for automatic speech recognition"
- School of Computer Science (McGill University, Montréal) – visiting student
- Laurea in Ingegneria Elettronica (M. Sc. degree) – University of Florence

Academic career

- 1991 Research Associate at University of Florence
- 1992 Associate Professor, University of Florence
- 1995 Associate Professor, University of Florence
- 2000 Full professor at University of Siena

He received the full professor habilitation from the University of Trento on November 1999.

Teaching

Prof. Gori has been teaching courses at graduate and undergraduate levels mostly at University of Siena and at the University of Florence. He has been involved in brief courses and cycles of seminars in many universities, including Universitat Ulm, Southern University of Denmark, University of Alicante, University of Wollongong, Université de Montréal, Université Pierre et Marie Curie, Paris. He has been the advisor of successful Ph.D students, including Paolo Frasconi (professor at University of Florence), Simone Marinai (associate professor at University of Florence), Marco Maggini, Franco Scarselli, and Monica Bianchini, (associate professors at the University of Siena), and Michelangelo Diligenti (assistant professor at the University of Siena, former Google engineer). Some of his students have leading roles in former spin-off companies, like Marco Ernandes, Ernesto Di Iorio, Giovanni Angelini, Leonardo Rigutini (Questit) and Nicola Baldini (focuseek), others work in top level projects in companies (e.g. Dario Bigongiari, Bing – Microsoft).

Research activity

Prof. Gori is interested in the broad field of artificial intelligence and, especially, in machine learning with applications to pattern recognition, Web mining, and game playing. He is especially interested in bridging logic and learning, and in the connections between symbolic and sub-symbolic representation of information. He also very much like the study of computation models at the basis of human intelligence, and their connections with artificial solutions taking place in machines. In the last five years, he has focused attention on a new paradigm of machine learning, that is centered around the notion of constraint. This has driven all the efforts towards a unique direction, whose results have only recently emerged (see <https://sites.google.com/site/semanticbasedregularization/> and the recent invited talk in international conferences, workshops, and schools). The study is mostly inspired by developmental psychology, the mathematical formalism is based on constrained variational calculus, which it is quite close to that used in support vector machines. A crucial issue of this systematic investigation is that of addressing solutions for bridging naturally logic descriptions and perceptual information. The main principles that inspire this research are also at the basis of the systematic investigation of this project, in which the emphasis is shifted to unsupervised learning for feature extraction. The information-based methods proposed in this project for feature extraction can be framed within the context of learning from constraints, which makes the this research proposal coherent with the recent research efforts. Prof. Gori has led many research projects supported by public research agencies and companies in this career, including WebCrow, a project for automatic solving of crosswords, that outperformed human competitors in an official competition which took place within the ECAI-06 conference¹ (see New Scientist, August 2006).

¹ The project is going to be re-activated for facing the challenge of automatic crosswords generation at the University of Trento working in partnership with Questit – spin-off University of Siena.

He has been the founder of the spin-off company QuestIt, April 2007 (question & answering) <http://www.quest-it.com/>

Role in scientific societies

He has played an active role in scientific associations

- President of the Italian Association for Artificial Intelligence
- Chair of the Italian Chapter of the IEEE Computational Intelligence Society
- Secretary of the European Neural Networks Society
- Chair del Technical Committee no. 3 of the International Association for Pattern Recognition on “Neural Networks for Pattern Recognition”

Current roles in scientific advising

- Fondazione Bruno Kessler – Trento <http://www.fbk.eu/>
- Fondazione Sistema Toscana – Firenze <http://www.fondazionesistematoscana.it/>

Current main research project

Prof. Gori is the leader of the research project “From Babbling to Conversation” which is financially supported by French company CogniTalk.

A distinguishing research project in the past (Google Resarch Awards grants)

The WebCrow project has originated one of the two software worldwide that are capable of solving crosswords (the other one is Proverb, which works for English only). WebCrow has been tested in a number of official competitions in both English and Italian, and it has been the subject of many articles in scientific magazines and newspapers, which reported its performance (for further details see <http://webcrow.dii.unisi.it/webpage/index.html> or, even better, just Google webcrow):

1. Federica Castellani, “Program cracks crosswords”, Nature (431) 620 October 2004
2. Lee Garber, “Software Wins Crossword-Puzzle-Solving Contest,” IEEE Computer, November 2006
3. Tom Simonite, “Crossword software trashes human challengers”, New Scientist, August 2006
4. Antonio Carlo Larizza, “Nei cruciverba il PC esce battuto”, Il Sole 24 Ore, 23 febbraio 2006
5. Altre segnalazioni su La Stampa, La Repubblica, Venerdì di Repubblica, Panorama (see <http://webcrow.dii.unisi.it> for further information)

Publications

see scholar.google.com for the full list / h-index = 39 as of 22 January 2016

Monographs

Ian Witten, Marco Gori, and Teresa Numerico, "Web Dragons: Inside the Myths of Search Engine Technology", Book, pp. 288, Morgan Kauffmann (Elsevier), November 2007

Main recent (forthcoming) invited talks

International conferences

- “Learning Semantic-based Structures from Textual Sources,” International Summer School on Web Science and Technology (Bilbao, July 18-22, 2016) <http://grammars.grlmc.com/webst2016/>
- “Learning to see like children,” 18th IAPR International Conference on Discrete Geometry for Computer Imagery - http://clem.dii.unisi.it/~dgci2014/invited_speakers.php
- “Learning from constraints” European Conference on Machine Learning / Principles and Practice of Knowledge Discovery in Databases, ECML-PKDD 2011 (Athens, Greece – 5-9 September 2011), <http://www.ecmlpkdd2011.org/talksDetails.php?talkId=4&info=a>

International Prizes/Awards/Academy membership

He has been the recipient of two Google Research Program awards on the WebCrow research project <http://webcrow.dii.unisi.it/webpage/index.html>

In addition he has been elevated to the fellow grade in the IEE, ECCAI, and IAPR:

- Fellow of the IEEE (Institute of Electrical and Electronics Engineers) <http://www.ieee.org/portal/pages/about/awards/fellows/society/CIS/CIS.html>
- Fellow of the ECCAI (European Coordinating Committee for Artificial Intelligence) <http://www.eccai.org/c/fellows>
- Fellow of the IAPR (International Association for Pattern Recognition) <http://www.iapr.org/fellowsandawards/?ar=2>

Memberships to Editorials Boards of International Journals

The PI has been (is currently) a member of the editorial board of the following journals

- IEEE Transactions on Neural Networks
- Pattern Recognition
- Neural Networks (currently)
- International Journal on Pattern Recognition and Artificial Intelligence
- Pattern Analysis and Applications (Springer)
- Neurocomputing (Elsevier)
- International Journal of Document Analysis and Recognition (Springer)
- Neural Networks Survey
- International Journal of Computer Research
- IEEE Transactions on Knowledge and Data Engineering (2001, Guest Editor)
- Cognitive Systems Research (2002, Guest Editor)
- Natural Intelligence (currently)