Curriculum vitae Prof. Mario Malcangi

Prof. Mario Malcangi received his undergraduate and graduate degrees in Electronic Engineering and Computer Science from the Milan Polytechnic in 1981. He studied also music and specifically electronic music at Milan Conservatory "G. Verdi", under the direction of M° Angelo Paccagnini, one of the most innovative contemporary music composers.

In '80s he had pioneering investigations on computer music at the Cybernetic Institute (formally Computer Science Department) of Milan University under the direction of Prof. Giovanni Degli Antoni,. He cooperated with Prof. Goffredo Haus to the born of LIM (Computer Music Laboratory).

His scientific collaborations were with several universities and institutions: Milan Polytechnic (Electronic Engineering Department), Milan University (Medicine Department), S. Raffaele Scientific Institute (Neurology and Psychiatry), and CNUCE-CNR.

Since 1981, he teaches digital signal processing and embedded system topics at a high technical schools, at Milan Polytechnic, at Università degli Studi di Milano Bicocca, and at SUPSI Engineering School in Switzerland.

Since 2002 he is professor and researcher at Università degli Studi di Milano, Department of Computer Science and he teaches digital signal processing and digital audio processing. Here he is the scientific responsible of the Digital Signal Processing & Real-Time Systems Laboratory (DSP&RTS Laboratory).

His researche efforts are in the areas of multimedia communications, digital signal processing, digital audio processing, speech processing, audio/visual signal processing, embedded/real-time systems, biometrics identification and authentication, natural HMI, and biomedical signal processing.

His research efforts are mainly targeted at speech- and audio-information processing, with special attention towards the soft-computing methods (neural networks and fuzzy logic) applied to speech synthesis, speech recognition, and speaker identification for the implementation on deeply embedded wearable systems.

He targets some of his research in the area of biomedical signal processing, specially investigating about heart rate variability (HRV) and new methods to infer about pathological and physiological state of the subject.
Natural User Interface (NUI) is a research topic in which is he is involved since 2008 with the goal to integrate audio, visual, bioelectrical, emotional, and behavioral information in a deeply embedded and wearable Human-Machine Interface (HMI).
He has been invited speaker and keynote speaker in international conferences in the research areas of neural networks and fuzzy logic engineering applications, and also in the area of biomedical signal processing applications.
He has been co-reviewer for AVI 2008 (Advanced Visual Interfaces) International Working Conference in cooperation with ACM-SIGCHI, ACM-SIGMM, SIGCHI Italy, May 28-30, 2008 - Napoli, Italy.
He is reviewer for the following journals:

- Neural Networks (Elsevier)
- Engineering Applications of Artificial Intelligence (Elsevier)
- Neural Computing and Applications (Springer)
- Journal of Operational Research – (Elsevier)
- Journal of Electrical and Computer Engineering (Indawi)
- Engineering Intelligent Systems (CRL Publishing)
- International Journal of Theaching and Education (IJoTE) - IISES

In 2008 he chaired the session "Data Bases and Multimedia" at the "Applied Informatics and Communications" international conference (AIC'08).
He is member of the International Neural Network Society and among the founders of the Engineering Applications of Neural Networks Special Interest Group (SIG).
He joined the Editorial Board of the IJSP (International Journal of Signal Processing).

He is in the program committee (PC) of

- EANN international conference (Engineering Applications of Neural Networks)
- AIAI international conference (Artificial Intelligence Applications and Innovations)
- EST international conference (Emerging Security Technologies).

Since 2000, he is organizer and main chair of the DSP Application Day e-Conference & Webinars.
In year 2000 he deposed a patent named "LIPSYNC", concerning the synchronizing processes of audio and video to drive the face of avatars by means of natural or synthetic utterance.

He participated to several industrial projects, developing the signal processing kernel of radars, voice messaging systems, PABXs, noise reduction system, intelligent sensors, fingerprint recognition systems and satellite systems, where high performance multi-DSP system architectures were the target computing engine.
He is author of more than 100 publications in journals, books, proceedings and multimedia. Among these, the most recent are:

Malcangi, M. (2015) Developing a multimodal biometric authentication system using soft computing methods. (METHODS IN MOLECULAR BIOLOGY). - In: Artificial neural networks / [a cura di] H. Cartwright. - New York : Springer, 2015. - ISBN 9781493922383. - pp. 205-225

Malcangi, M. (2014) Fuzzy-Logic Decision Fusion for Nonintrusive Early Detection of Driver Fatigue or Drowsiness. (COMMUNICATIONS IN COMPUTER AND INFORMATION SCIENCE). - In: Engineering Applications of Neural Networks (EANN), Mladenov, C. Jayne, L. Iliadis (Eds.) Springer, pp. 59-70

Ludovico, L.A., Malcangi, M. (2014). An IEEE 1599 framework to play music intuitively: the metapiano case study. In: *Proceedings of the 6th International Conference on Computer Supported Education, (CSEDU 2014), Barcelona* (pp. 409–414). SciTePress.

Malcangi, M., Ouazzane, K., Patel, P.(2013). Audio-visual fuzzy fusion for robust speech recognition. In *Proceedings of International Joint Conference on Neural Networks*, Dallas, Texas, USA, August 4-9, 2013, pp. 582-589.

Malcangi, M. (2013). Audio data fuzzy fusion for source localization. In *CCIS (Communications in Computer and Information Science ; 383)*, Eds L. Iliadis, H. Papadopoulos, C. Jayne. - Heidelberg : Springer- pp. 323-329.

Malcangi, M., Ouazzane, K., Riva, M. (2013). Hard and soft computing methods for capturing and processing phonocardiogram. In: *International Journal of Circuits, Systems and Signal Processing*, Issue 1, Vol. 7,pp. 34-41.

Malcangi, M., Smirne, S. (2012). Heart rate variability analysis for prediction of sleep onset in car drivers / In*: Journal of sleep research.*, Vol. 21:Supplement 1,, pp. 307-308.

Malcangi, M., Smirne, S. (2012). Fuzzy-logic inference for early detection of sleep onset in car driver. In: CCIS (*Communications in computer and information science ; 311),* Eds C. Jayne, S. Yue, L. Iliadis. - Berlin : Springer pp. 41-50.

The full list is available at:

https://air.unimi.it/simple-search?query=malcangi+mario&rpp=10&sort_by=bi_sort_2_sort&order=DESC#.VX7fqka5i5Y

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