

CURRICULUM VITÆ



Ph.D. Marco Marcon

Assistant Professor at Politecnico di Milano
DEIB - Dipartimento di Elettronica, Informazione e Bioingegneria
ISPL - Image and Sound Processing Lab
Via Giuseppe Ponzio, 34/5
20133 Milano (ITALY)
tel. +39-02 2399 3582
mobile: +39-328-0141565

Marco Marcon was born in Bollate (Milan, Italy) in 1972.

He completed his studies in Electronic Engineering at the Politecnico di Milano, Italy in 1998. He received the Ph.D. in Applied Physics in 2003 from the Physics Department of Politecnico di Milano. In 2003 he joined, as a Post-Doc, the "Dipartimento di Elettronica, Informazione e Bioingegneria" of the Politecnico di Milano, where, from 2006 is working as an Assistant Professor in the Image and Sound Processing Group (ISPG). His current research interests are in the area of Digital Image Processing, Computer Vision and Audio spazialization. Nowadays he is working on 3D reconstruction systems from multiple views for scene modeling in automotive environments and 3D face recognition systems; he is also working on soundscape modeling in complex environments and iris segmentation/recognition systems.

He is the principal investigator for Politecnico di Milano for the Vodafone 5G National program concerning the Video Surveillance for Fire detection (Use Case 12) and Assistive Maintenance for Industrial applications (Use Case 23).

He is following a research activity with MultiMedica Spa - Via Fantoli 16/15, Milan on automatic Breast Cancer Detection based on Deep Learning Techniques in collaboration with Insubria University of Varese and Università di Brescia.

He is following a research activity based on X-Ray Food quality Assessment based on Deep Learning Techniques for XNEXT s.r.l. Via Valtorta, 48 Milan.

He is following a research activity for Tomography reconstruction and volumetric data denoising for XNEXT s.r.l. Via Valtorta, 48 Milan.

He is participating to the to the European Project DEIS - Dependability Engineering Innovation for Cyber-Physical Systems (H2020, ref. 732242) where an ad-hoc CPS will be implemented for the automotive domain in order to get an adaptive identification of physiological parameters for professional drivers. Time of Flight (ToF) cameras based on SPAD (Single Photon Avalanche Diode) will be coupled to traditional cameras and other sensor in order to get a complete monitoring of driver physiological parameters.

He is participating as a principal investigator for Politecnico di Milano on the "Regione Lombardia" project S.M.A.R.T. (Synchronous Multimedia Avionic Ring Technology) in Collaboration with Pariani Via Aspesi, 1 - 21017 San Macario (VA).

He participated, as principal investigator for the Politecnico di Milano, to the European Project COSSIM, (Horizon2020, ref: 644042) For a Novel, Comprehensible, Ultra-Fast, Security-Aware CPS Simulator where Politecnico di Milano together with ST Microelectronics is investigating an efficient system for distributed visual search based on a Cyber Physical System.

He participated, as principal investigator for the Politecnico di Milano, to the European industrial Project ASTUTE (ARTEMIS) on the automotive field for the 3D scene reconstruction from multiple cockpit views, and GPS positioning improvement based on the surrounding scene.

He participated, as principal investigator for the Politecnico di Milano to the national project “Integrated CheckPoint” to follow and match people and their luggage all around the airport, and he is in particular investigating novel face recognition approaches for non-frontal images.

He participated as principal investigator to the research project CATS (Computer Aided Tadoma System) founded by the 5x1000 national funding system for Braille real time speaker transcription for deaf-blind impaired people.

He participated to the PTA (Alpine Technological Platform) Inter-reg European Project on the vehicle tracking across national and international regions.

He participated to the FP7 European Project Scenic (Self-Configuring ENvironment-aware Intelligent aCoustic sensing).

He participated to the Network of Excellence Visnet (Networked Audiovisual Media Technologies) and Visnet II, participated to the IST-2000-28436 European Project "ORIGAMI: A new paradigm for high-quality mixing of real and virtual".

He is teaching a course in “Video Signals” for graduate degree in Telecommunications Engineering at Politecnico di Milano.

He is teaching a course in “Multimedia Signal Processing” and “Fundamentals of Multimedia Signal Processing” for graduate degree at Politecnico di Milano in Computer Science.

He is teaching a course in signal processing in italian language: “Fondamenti di Telecomunicazioni” for the bachelor’s degree at Politecnico di Milano in Computer Science.

He is also teaching a Ph.D. course in “Projective Geometry Applications to 3D Vision and Spatial Audio”.

He is a co-author of three international patents relative to Computer Vison and Image Processing techniques:

- M.Marcon, D.Sarubbo “A system for Checking a Correct Oral Hygiene Procedure” WO2016020803 (PCT/IB2015/055755)
- M. Marcon, L. Piccarreta, A. Sarti, S. Tubaro, "A novel method for modelling surfaces from sparse data based on the evolution of a level-set of a volumetric function" PCT/EP2004/052154
- M.Marcon, D. Onofrio, "Method for recognition between a first object and a second object each represented by images” PCT No. PCT/EP2006/002479

He is author of more than 70 publications on international books, journals and conferences:

An experimental investigation of the bicycle motion during a hands-on shimmy

Vehicle System Dynamics 2020-05-21 | journal-article

DOI: [10.1080/00423114.2020.1762902](https://doi.org/10.1080/00423114.2020.1762902)

Deep skin detection on low resolution grayscale images

Pattern Recognition Letters 2020 | journal-article

DOI: [10.1016/j.patrec.2019.12.021](https://doi.org/10.1016/j.patrec.2019.12.021)

View-synthesis from uncalibrated cameras and parallel planes

Signal Processing: Image Communication 2019-11 | journal-article

DOI: [10.1016/j.image.2019.08.012](https://doi.org/10.1016/j.image.2019.08.012)

Remote PhotoPlethysmoGraphy Using SPAD Camera for Automotive Health Monitoring Application

2019 AEIT International Conference of Electrical and Electronic Technologies for Automotive (AEIT AUTOMOTIVE) 2019-07 | conference-paper

DOI: [10.23919/eeta.2019.8804516](https://doi.org/10.23919/eeta.2019.8804516)

A framework for interpreting, modeling and recognizing human body gestures through 3D eigenpostures

International Journal of Machine Learning and Cybernetics 2019-05-21 | journal-article

DOI: [10.1007/s13042-018-0801-1](https://doi.org/10.1007/s13042-018-0801-1)

Fast and Reliable Facial Landmarks Localization in Non Frontal Images

Proceedings - European Workshop on Visual Information Processing, EUVIP 2019 | conference-paper

DOI: [10.1109/EUVIP47703.2019.8946249](https://doi.org/10.1109/EUVIP47703.2019.8946249)

Hyperspectral X-ray denoising: Model-based and data-driven solutions

European Signal Processing Conference 2019 | conference-paper

DOI: [10.23919/EUSIPCO.2019.8903151](https://doi.org/10.23919/EUSIPCO.2019.8903151)

The influence of magnification on the quality of adhesive removal in orthodontic debonding, [Influenza dei sistemi ingrandenti nella rimozione dell'adesivo nel debonding ortodontico]

Dental Cadmos, 2019 | journal-article

DOI: [10.19256/d.cadmos.10.2019.04](https://doi.org/10.19256/d.cadmos.10.2019.04)

Usage of Hough Transform for Expiry Date Extraction via Optical Character Recognition

2019 Advances in Science and Engineering Technology International Conferences, ASET 2019

2019 | conference-paper

DOI: [10.1109/ICASET.2019.8714306](https://doi.org/10.1109/ICASET.2019.8714306)

An open-source extendable, highly-accurate and security aware simulator for cloud applications

21st Conference on Innovation in Clouds, Internet and Networks, ICIN 2018

2018 | conference-paper DOI: [10.1109/ICIN.2018.8401578](https://doi.org/10.1109/ICIN.2018.8401578)

COSSIM: An open-source integrated solution to address the simulator gap for systems of systems

Proceedings - 21st Euromicro Conference on Digital System Design, DSD 2018 2018 | conference-

paper

DOI: [10.1109/DSD.2018.00033](https://doi.org/10.1109/DSD.2018.00033)

Studying the effects of feature extraction settings on the accuracy and memory requirements of neural networks for keyword spotting

IEEE International Conference on Consumer Electronics - Berlin, ICCE-Berlin

2018 | conference-paper

DOI: [10.1109/ICCE-Berlin.2018.8576243](https://doi.org/10.1109/ICCE-Berlin.2018.8576243)

Accurate characterization of embedded Structure from Motion

2015 IEEE 1st International Workshop on Consumer Electronics - Novi Sad, CE WS 2015

2017 | conference-paper

DOI: [10.1109/CEWS.2015.7867140](https://doi.org/10.1109/CEWS.2015.7867140)

Accurate cyber-physical system simulation for distributed visual search applications

RTSI 2017 - IEEE 3rd International Forum on Research and Technologies for Society and Industry,

Conference Proceedings 2017 | conference-paper

DOI: [10.1109/RTSI.2017.8065917](https://doi.org/10.1109/RTSI.2017.8065917)

Embedded Real-Time Visual Search with Visual Distance Estimation

Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and

Lecture Notes in Bioinformatics) 2017 | book

DOI: [10.1007/978-3-319-68548-9_6](https://doi.org/10.1007/978-3-319-68548-9_6)

Multicamera rig calibration by double-sided thick checkerboard

IET Computer Vision 2017 | journal-article

DOI: [10.1049/iet-cvi.2016.0193](https://doi.org/10.1049/iet-cvi.2016.0193)

Postural Assessment in Dentistry Based on Multiple Markers Tracking

Proceedings - 2017 IEEE International Conference on Computer Vision Workshops, ICCVW 2017

2017 | conference-paper

DOI: [10.1109/ICCVW.2017.167](https://doi.org/10.1109/ICCVW.2017.167)

Training an object detector using only positive samples

2015 IEEE 1st International Workshop on Consumer Electronics - Novi Sad, CE WS 2015

2017 | conference-paper

DOI: [10.1109/CEWS.2015.7867139](https://doi.org/10.1109/CEWS.2015.7867139)

Validation results of satellite mock-up capturing experiment using nets

Acta Astronautica 2017 | journal-article

DOI: [10.1016/j.actaastro.2017.02.019](https://doi.org/10.1016/j.actaastro.2017.02.019)

Toothbrush motion analysis to help children learn proper tooth brushing

Computer Vision and Image Understanding 16-07 | journal-article

DOI: [10.1016/j.cviu.2016.03.009](https://doi.org/10.1016/j.cviu.2016.03.009)

3D reconstruction of a space debris capturing net trajectory during microgravity experiments - Results and lesson learnt

Proceedings of the International Astronautical Congress, IAC 2016 | conference-paper

A low-cost solution to 3D pinna modeling for HRTF prediction

ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing – Proceedings

2016 | conference-paper

DOI: [10.1109/ICASSP.2016.7471685](https://doi.org/10.1109/ICASSP.2016.7471685)

Smart toothbrushes: Inertial measurement sensors fusion with visual tracking

Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 2016 | book

DOI: [10.1007/978-3-319-48881-3_33](https://doi.org/10.1007/978-3-319-48881-3_33)

Visual Search of multiple objects from a single query

IEEE International Conference on Consumer Electronics - Berlin, ICCE-Berlin

2016 | conference-paper

DOI: [10.1109/ICCE-Berlin.2016.7684712](https://doi.org/10.1109/ICCE-Berlin.2016.7684712)

IAC-15-A6.5.8 Validation results of satellite mock-up capturing experiment using nets

Proceedings of the International Astronautical Congress, IAC 2015 | conference-paper

Piecewise distortion correction for fisheye lenses

Proceedings - International Conference on Image Processing, ICIP 2015 | conference-paper

DOI: [10.1109/ICIP.2015.7351568](https://doi.org/10.1109/ICIP.2015.7351568)

Iris image correction method from unconstrained images

Lecture Notes in Computational Vision and Biomechanics 2014 | book

DOI: [10.1007/978-3-319-04039-4_12](https://doi.org/10.1007/978-3-319-04039-4_12)

Does the skin texture contain useful information to state the identity?

5th International Conference on Imaging for Crime Detection and Prevention, ICDP 2013

2013 | conference-paper

Improving action classification with volumetric data using 3D morphological operators

ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing – Proceedings

2013 | conference-paper

DOI: [10.1109/ICASSP.2013.6637973](https://doi.org/10.1109/ICASSP.2013.6637973)

Mixing retrieval and tracking using compact visual descriptors

Proceedings 2013 IEEE 3rd International Conference on Consumer Electronics - Berlin, ICCE-Berlin 2013 2013 | conference-paper

DOI: [10.1109/ICCE-Berlin.2013.6697963](https://doi.org/10.1109/ICCE-Berlin.2013.6697963)

Surface reconstruction using 3D morphological operators for objects acquired with a multi-Kinect system

ACM International Conference Proceeding Series 2013 | conference-paper

DOI: [10.1145/2466715.2466719](https://doi.org/10.1145/2466715.2466719)

3D correspondences in textured depth-maps through planar similarity transform

2012 IEEE International Conference on Emerging Signal Processing Applications, ESPA 2012 – Proceedings 2012 | conference-paper

DOI: [10.1109/ESPA.2012.6152434](https://doi.org/10.1109/ESPA.2012.6152434)

3D wide baseline correspondences using depth-maps

Signal Processing: Image Communication 2012 | journal-article

DOI: [10.1016/j.image.2012.01.009](https://doi.org/10.1016/j.image.2012.01.009)

3D wide baseline correspondences using depth-maps

Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering 2012 | book

DOI: [10.1007/978-3-642-30419-4_17](https://doi.org/10.1007/978-3-642-30419-4_17)

Correction method for nonideal iris recognition

Proceedings - International Conference on Image Processing, ICIP 2012 | conference-paper

DOI: [10.1109/ICIP.2012.6467068](https://doi.org/10.1109/ICIP.2012.6467068)

Denoising infrared structured light DIBR signals using 3D morphological operators

3DTV-Conference 2012 | conference-paper

DOI: [10.1109/3DTV.2012.6365441](https://doi.org/10.1109/3DTV.2012.6365441)

Ge/SiGe heterostructures as emitters of polarized electrons

Journal of Applied Physics 2012 | journal-article

DOI: [10.1063/1.3698290](https://doi.org/10.1063/1.3698290)

Sclera segmentation for gaze estimation and iris localization in unconstrained images

Computational Modelling of Objects Represented in Images: Fundamentals, Methods and Applications III - Proceedings of the International Symposium, CompIMAGE 2012 2012 | conference-paper

3D face reconstruction from a single camera using a multi mirror set-up

IET Seminar Digest 2009 | conference-paper

DOI: [10.1049/ic.2009.0236](https://doi.org/10.1049/ic.2009.0236)

Geometric and radiometric modeling of 3D scenes

Proceedings - 2009 IEEE International Conference on Multimedia and Expo, ICME 2009 2009 | conference-paper

DOI: [10.1109/ICME.2009.5202825](https://doi.org/10.1109/ICME.2009.5202825)

Fast PDE approach to surface reconstruction from large cloud of points

Computer Vision and Image Understanding 2008 | journal-article

DOI: [10.1016/j.cviu.2008.05.008](https://doi.org/10.1016/j.cviu.2008.05.008)

Uncalibrated view synthesis from relative affine structure based on planes parallelism

Proceedings - International Conference on Image Processing, ICIP 2008 | conference-paper

DOI: [10.1109/ICIP.2008.4711755](https://doi.org/10.1109/ICIP.2008.4711755)

A human action classifier from 4-D data (3-D+TIME): Based on an invariant body shape descriptor and hidden markov models

SIGMAP 2007 - International Conference on Signal Processing and Multimedia Applications, Proceedings 2007 | conference-paper

Gaining efficiency and resolution in soft X-ray emission spectrometers thanks to directly illuminated CCD detectors

Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment 2007 | journal-article

DOI: [10.1016/j.nima.2006.10.024](https://doi.org/10.1016/j.nima.2006.10.024)

3-D body posture tracking for human action template matching*ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing – Proceedings 2006* | conference-paper

A robust method for the estimation of reliable wide baseline correspondences*Proceedings - International Conference on Image Processing, ICIP 2006* | conference-paper

DOI: [10.1109/ICIP.2006.312733](https://doi.org/10.1109/ICIP.2006.312733)

3D object modeling with a voxelset carving approach

Proceedings - International Conference on Image Processing, ICIP 2005 | conference-paper

DOI: [10.1109/ICIP.2005.1529935](https://doi.org/10.1109/ICIP.2005.1529935)

Accurate depth-map estimation for 3D face modeling

13th European Signal Processing Conference, EUSIPCO 2005 2005 | conference-paper

Clustering of human actions using invariant body shape descriptor and dynamic time warping

IEEE International Conference on Advanced Video and Signal Based Surveillance - Proceedings of AVSS 2005 2005 | conference-paper

DOI: [10.1109/AVSS.2005.1577237](https://doi.org/10.1109/AVSS.2005.1577237)

Colored visual tags: A robust approach for augmented reality

IEEE International Conference on Advanced Video and Signal Based Surveillance - Proceedings of AVSS 2005 2005 | conference-paper

DOI: [10.1109/AVSS.2005.1577306](https://doi.org/10.1109/AVSS.2005.1577306)

Image compression in a multi-camera system based on a distributed source coding approach

13th European Signal Processing Conference, EUSIPCO 2005 2005 | conference-paper

Fast point-cloud wrapping through level-set evolution

IEE Conference Publication 2004 | conference-paper

Epitaxial thin NiO films grown on Fe(0 0 1) and the effect of temperature

Surface Science 2002 | journal-article

DOI: [10.1016/S0039-6028\(02\)02194-5](https://doi.org/10.1016/S0039-6028(02)02194-5)

Erratum: Versatile apparatus for investigating ultrathin magnetic films (Journal of Electron Spectroscopy & Related Phenomena 122:3 (221-229) PII: S0368204801003590)

Journal of Electron Spectroscopy and Related Phenomena 2002 | journal-article

DOI: [10.1016/S0368-2048\(02\)00073-7](https://doi.org/10.1016/S0368-2048(02)00073-7)

Spin and energy analysis of electron beams: Coupling a polarimeter based on exchange scattering to a hemispherical analyzer

Review of Scientific Instruments 2002 | journal-article

DOI: [10.1063/1.1512342](https://doi.org/10.1063/1.1512342)

Study of bulk ground state properties of cerium intermetallics by linear dichroism in 4f resonant inelastic X-ray scattering

Solid State Communications 2002 | journal-article

Understanding the bias dependence of magnetoresistance in the system $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{SrTiO}_3/\text{Co}$

INTERMAG Europe 2002 - IEEE International Magnetism Conference 2002 | conference-paper

DOI: [10.1109/INTMAG.2002.1001023](https://doi.org/10.1109/INTMAG.2002.1001023)

Unoccupied electron states of $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$

Journal of Magnetism and Magnetic Materials 2002 | journal-article

DOI: [10.1016/S0304-8853\(01\)00995-7](https://doi.org/10.1016/S0304-8853(01)00995-7)

Versatile apparatus for investigating ultrathin magnetic films

Journal of Electron Spectroscopy and Related Phenomena 2002 | journal-article

DOI: [10.1016/S0368-2048\(01\)00359-0](https://doi.org/10.1016/S0368-2048(01)00359-0)

A new analyzer for spin resolved electron spectroscopies

Journal of Magnetism and Magnetic Materials 2001 | journal-article

Electronic structure of epitaxial thin $\text{NiO}(100)$ films grown on $\text{Ag}(100)$: Towards a firm experimental basis

Physical Review B - Condensed Matter and Materials Physics 2001 | journal-article

DOI: [10.1103/PhysRevB.64.165402](https://doi.org/10.1103/PhysRevB.64.165402)

Input electron optics for Mott detectors used in secondary electron magnetometry

Journal of Electron Spectroscopy and Related Phenomena 1998 | journal-article