Curriculum vitæ

Giacomo Marchioro

✉ **giacomo.marchioro@univr.it**
✉ **marchiorogiacomo@gmail.com**

Personal profile:

I graduated in chemistry applied to conservation and restoration of Cultural Heritage from Ca' Foscari University in Venice. My background gave me a deep understanding of art history and the techniques and materials used in artworks. During my academic career, I have cultivated my passion for sharing Cultural Heritage content in the most accessible and creative ways.

Education:

2016–2019	**University of Verona, Verona, Italy, PhD in Nanoscience and Advanced Technologies** Surface metrology applied to Cultural Heritage objects, conoscopic holography, multi-modal data-fusion, data analysis.
2010–2012	**Ca' Foscari University, Venice, Italy, Master's degree 110/110** Analytical chemistry, diagnostics for cultural heritage, chemistry of degradative processes, pigments chemistry, biochemistry, restoration of works of artistic interest.
2007–2010	**Ca' Foscari University, Venice, Italy, Bachelor's degree 107/110** Analytical chemistry, diagnostics for cultural heritage, chemistry of degradative processes, pigments chemistry, biochemistry, restoration of works of artistic interest.
2002-2007	**N.Tron, Schio, Italy, Scientific high school degree 71/100** Mathematics, physics, chemistry.

Work experience:

Jan. 2020–present	**Università di Verona, Verona, Italia, Tecnologist** I worked on the analysis and digitization of the manuscripts in the Biblioteca Capitolare in Verona, designing the multi-modal digitization workflow and building the web-platform for sharing the results.
Giu. 2019–Sep. 2019	**NTNU: Norwegian University of Science and Technology , Gjøvik , Norway, Visiting student** I implemented a system based on thermal cameras for monitoring thermal gradients during analysis and wrote a parser in Python for reading and analyzing hyperspectral data.

Gen. 2016–Ott. 2019 **Università di Verona, Verona, Italia, Ph.D. student**

I worked within the Scan4Reco European Project, on the integration of conoscopic holography sensors and thermal cameras. I wrote the software for analyzing and exporting multi-technique datasets.

Gen. 2016–Ott. 2016 **Università di Verona, Verona, Italia, Commissioned researcher**

I worked as a researcher within the Scan4Reco European Project (Multimodal Scanning of Cultural Heritage Assets for their multilayered digitization and preventive conservation via spatiotemporal 4D Reconstruction and 3D Printing) on the implementation of the conoscopy holography scanning system, and the analysis of the surface topography maps.

Ago. 2015--Dec. 2015 **Sellbytel, Valencia, Spain, Mac Expert Flex (sales and post-sales agent)**

I have worked for the Apple online store as a sales and post-sales agent.

Nov. 2014--May. 2015 **Amega Sciences, Daventry, England, R&D chemist**

I have worked as a chemical formulator for the R&D department under ISO 9001:2000 complaints on different projects regarding the formulation of fertilizers, paints and detergents.

2013–2014 **Verona University, Verona, Italy, Researcher**

Performing UV-VIS-NIR-MIR multispectral imaging analysis on Veronese's mural paintings in San Sebastiano church, helping students to plan their thesis, helping writing articles, writing Python script to increase the efficiency of some tasks, data management using GIS.

2012–2012 **Superintendence for the Museum Center of Venice, Venice, Italy, Collaborator**

Performing reflectography of "Presentazione di Maria al tempio" by Titian with IR-M700 thermographic camera. Helping LANIAC laboratory in performing the reflectography with Osiris NIR-camera.

2010–2010 **National Institute of Optics (I.N.O.), Florence-Venice, Italy, Intern**

Characterization of some instruments (camera IR-M700, Raman Xantus-1) and components for non-invasive analysis of works of historical and artistic interest. Research and implementation of the tools used, designing of some secondary components with CAD software.

Languages proficiency:

Italian	Mother tongue
English	Fluent
Spanish	Fluent

IT skills:

Operating system: Windows, Linux, MacOSX
Software: Windows Office/LibreOffice, OriginLab,Gimp, **CAD** (SketchUp, FreeCAD, Autocad), ImageJ(Fiji), Gimp, Avogadro, Meshlab, **GIS software** (QGIS) and LIMS.

Programming and markup languages:

Python	Fluent
Javascript	Good knowledge
C++	Basic knowledge
HTML	Good knowledge
CSS	Good knowledge
LaTeX	Good knowledge

Technical skills:

Instrumental techniques:Conoscopic holography, multi-spectral imaging, thermography, ultraviolet and infrared digital photography, FT-IR, Raman spectroscopy, porosimetry, chemometrics.
Driving licence:B

Publications:

2020 G.Marchioro, C.Daffara **PCA-based method for managing and analyzing single-spot analysis referenced to spectral imaging for artworks diagnostics**, MethodsX, Volume 7, 100799 (2020); https://doi.org/10.1016/j.mex.2020.100799

\- N. de Manincor, G. Marchioro, E. Fiorin, M. Raffaelli, O. Salvadori, C. Daffara **Integration of multispectral visible-infrared imaging and pointwise X-ray fluorescence data for the analysis of a large canvas painting by Carpaccio**, Microchemical Journal, Volume 153, 104469 (25 November 2019); https://doi.org/10.1016/j.microc.2019.104469

2019 G.Marchioro, L.Perlini, C.Daffara **Monitoring microclimate-induced deformations on hygroscopic materials using conoscopic holography sensors**, Proc. SPIE 11058, Optics for Arts, Architecture, and Archaeology VII, 1105812 (12 July 2019); https://doi.org/10.1117/12.2527610

\- C.Daffara, G.Marchioro, D.Ambrosini **Smartphone diagnostics for cultural heritage**, Proc. SPIE 11058, Optics for Arts, Architecture, and Archaeology VII, 110581K (12 July 2019); https://doi.org/10.1117/12.2527560

2018 S.Siracusano, C.Daffara, R. Muradore, G. Marchioro, D.Scutelnic, D.De Marchi, A.Mariotto, A.Silvesri, M.Brunelli, V.De Marco, A.Porcaro, P.Fiorini, W.Artibani **Experimental model of an artificial pneumoperitoneum to measure thermal energy spread during bipolar cauterizing**, European Urology Supplements , Volume 17 , Issue 8 , 304 - 305; doi: https://doi.org/10.1016/S1569-9056(18)33292-5

\- I.Ciortan, G.Marchioro, C.Daffara, R.Pintus, E.Gobbetti, A.Giachetti, **Aging Prediction of Cultural Heritage Samples Based on Surface Microgeometry** Eurographics Workshop on Graphics and Cultural Heritage,Vienna, 2018. https://doi.org/10.2312/gch.20181352

\- I.Ciortan, R.Pintus, G.Marchioro, C.Daffara, E.Gobbetti, A.Giachetti. **A DICOM-inspired metadata architecture for managing multimodal acquisitions in Cultural Heritage** In Digital Cultural Heritage, pp. 37-49. Springer, Cham, 2018.

2017 G.Marchioro, G.Apostolidis, G.Karagiannis, M. Galeotti, C.Daffara **Surface and subsurface layers characterization in artworks using conoscopic laser holography and acoustic microscopy**, Proc. SPIE 10331, Optics for Arts, Architecture, and Archaeology VI, 103310L (July 11, 2017); doi:10.1117/12.2270321; http://dx.doi.org/10.1117/12.2270321

- N.Gaburro, G.Marchioro, and C.Daffara. **Conoscopic laser microprofilometry for 3D digital reconstruction of surfaces with sub-millimeter resolution**. 2017 IEEE International Conference on Environment and Electrical Engineering and 2017 IEEE Industrial and Commercial Power Systems Europe (EEEIC/I&CPS Europe). IEEE, 2017.

- N. Gaburro, G. Marchioro, and C. Daffara. **A versatile optical profilometer based on conoscopic holography sensors for acquisition of specular and diffusive surfaces in artworks** Optics for Arts, Architecture, and Archaeology VI. Vol. 10331. International Society for Optics and Photonics, 2017.

- A. Giachetti, I.Ciortan, C.Daffara, G.Marchioro, , R.Pintus, E.Gobbetti, (2017). **A Novel Framework for Highlight Reflectance Transformation Imaging.** Computer Vision and Image Understanding.

- N. de Manincor, G.Marchioro, V.Barra, O.Salvadori, C.Daffara, (2017, March). **Optical characterization of artist's materials in ancient paintings by spectral imaging in the VIS-IR range.** In OCM 2017-Optical Characterization of Materials-conference proceedings (p. 137). KIT Scientific Publishing.

2016 I.Ciortan, R.Pintus, G.Marchioro, C.Daffara, A.Giachetti, E.Gobbetti, (2016). **A practical reflectance transformation imaging pipeline for surface characterization in cultural heritage.**

2014 Correlatore: Marcella Formaggio, **Analisi riflettografiche degli affreschi di Paolo Farinati strappati in casa Sebastiani**, Università di Verona

2013 C.Daffara, D.Ambrosini, L.Pezzati, G.Marchioro,**Thermal quasi reflectography (TQR): current research and potential applications**. In SPIE Optical Metrology 2013 (pp. 87900S- 87900S). International Society for Optics and Photonics.

- C.Daffara, G.Marchioro, E.Zendri, D.Ambrosini, P.I.Mariotti **The challenge of infrared Imaging of frescos: Thermal Quasi-Reflectography unveils hidden features of artworks**, BUILT HERITAGE 2013, Milano, R. Gabaglio, D. Gulotta, pp. 1399-1404, Convegno: Built Heritage 2013 - Monitoring Conservation and Management (ISBN 9788890896101) `http://www.bh2013.polimi.it/papers/bh2013_paper_346.pdf`

Theses

2012	Tesi magistrale:**Integrazione di Spettroscopia e Imaging multispettrale nel MIR per l'analisi non invasiva dei dipinti murali**.
Abstract	In this thesis a preliminary study was conducted on some IR imaging techniques applied to the diagnosis of mural paintings, paying particular attention to medium infrared thermography. The Mitsubishi IR-M700 thermal imaging camera was used to characterize the previously prepared specimens according to the traditional techniques, while the Bruker spectrometer, Vertex 70, and mircroprophilometry were used to obtain supplementary information.
2007	Tesi triennale:**Un approccio non invasivo allo studio degli strati pittorici: Imaging IR e spettroscopia Raman portatile**
Abstract	In this thesis a non-invasive approach to the study of the pictorial layers was tested through multi-spectral imaging in NIR and portable Raman spectroscopy. The instruments used were previously characterized and tested on specimens of pictorial materials.

Other qualifications and conferences:

2016	Politecnico di Milano **Invited speaker**: *Profilometria 3D laser senza contatto con la tecnica dell'olografia conoscopica*
2016	IRUG **Speaker**: *Thermal quasi-reflectography (TQR) in the mid-IR, handheld Raman spectroscopy, and optical micro-profilometry: multi-technique mapping of decay pattern in wall paintings*
2014	Ateneo Veneto **Speaker** : *in "la giornata di studi dell'Ateneo Veneto:I dipinti di Paolo Veronese nella chiesa di San Sebastiano a Venezia"*
2013	Politecnico di Milano **Presenter of the poster**: *"The challenge of infrared imaging of frescos: thermal quasi-reflectography unveils hidden features of artworks" in Built Heritage 2013.*
2013 (3 gg)	Universtià di Bologna Alma Mater Studiorum **Certificate of attendance to the workshop**: *Analyses of paintings: new advances in the development of micro-destructive and non-destructive techniques.*
2009 (6 months)	Università Ca' Foscari, Fondo sociale Europeo **Expert in the restoration of wood and metal materials**
2009 (6 months)	Università Ca' Foscari, Fondo sociale Europeo **Expert in the field of restoration of contemporary art**