Curriculum vitae

PERSONAL INFORMATION

Sara Mazzocato

Verona (Italy)

sara.mazzocato@univr.it

Gender Female

| Nationality Italian

WORK EXPERIENCE

October 2024 - today

Research fellowship at OpDATeCH laboratory

Computer Science Department, University of Verona.

- Development of physical techniques and methodology for analysis of surface data.

Sector: Applied Physics research.

October 2021 - September 2024

Ph.D. in Nanoscience and Advanced Technologies

Computer Science Department, University of Verona.

- Monitoring the non-local surface response combining multispectral and height data.

S.S.D: PHYS-06/A - Physics for Life Sciences, Environment, and Cultural Heritage

2022 - today

Contract professor of Foundations and Teaching of Physics (lab sessions)

Department of Human Sciences, University of Verona.

- The course introduces teachers-to-be to physics learning in an exploratory and experiential mode.

Sector Education.

November 2021 - today

Collaboration for PLS activities (Progetto Lauree Scientifiche)

Computer Science Department, University of Verona.

- Activities with the students of the 4th and 5th year of high schools regarding Physics applied to Art and Cosmology.

Sector Scientific research and education.

November 2019 - September 2021

Research fellowship at OpDATeCH laboratory

Computer Science Department, University of Verona.

- Development of physical techniques and data analysis in the field of cultural heritage under the supervision of prof. C. Daffara.

Sector Applied Physics research.

August 2019

Internship at INSIVUMEH

Guatemala City, Central America.

- Analysis of the changes in precipitation pattern and amount in specific sites in Guatemala.

Sector: Environment, Natural Resources and Climate Change.

June 2019 - July 2019

Internship at Mesoamerican Reef Fund

Guatemala City, Central America.

- Developing a GIS database for the program Reef Rescue Initiative that aims to identify the areas of highest vulnerability in order to empower local communities and to restore the natural resources.

Sector: Environment, Natural Resources and Climate Change.

Oct 2017 - June 2018

Maths and Physics teacher at the high school.

Istituto Tecnico Tecnologico e Liceo Artistico "A. Canova", Vicenza.

Sector: Education.

Feb 2016 - May 2016; Aug 2016 - Nov 2016

Intership at the Medical Physics operational unit

Medical Physics operational unit at San Bortolo Hospital, Vicenza (Italy)

- Quality controls in Radiology and Radiotherapy, environmental measures in the context of radiation protection and during the installation of radiological equipment.

Sector: Medical Physics and radioprotection.

May 2016 - Jun 2016

Maths and Physics teacher at the high school.

Istituto Professionale Statale "G.B.Garbin", Schio (VI)

Sector: Education.

Feb 2016 - Dec 2016

Collaboration with Edifir - Edizioni Firenze

Edifir - Edizioni Firenze, Firenze

- Collaboration with Edifir - Edizioni Firenze for the creation of the journal *Cities of memory - International Journal on Culture and Heritage at Risk* through the development of the website and being part of the editorial board of the journal.

Sector: Scientific and cultural dissemination.

2008 - 2018

Private teacher

Private lessons of maths and physics

Sector: Education.

EDUCATION AND TRAINING

October 2021 - September 2024

Ph.D. in Nanoscience and Advanced Technologies

Computer Science Department, University of Verona

Thesis: Monitoring the non-local surface response combining multispectral and height data.

S.S.D: PHYS-06/A - Physics for Life Sciences, Environment, and Cultural Heritage

17/06/2024 - 21/06/2024 16/09/2024 - 20/09/2024

International Remote Sensing Summer School

University of Cagliari, National Institute of Geophysics and Volcanology, and Fondazione Montagna Sicura, Courmayeur and San Vero Milis (Sardinia), Italy

- Earth Sciences and Remote Sensing.

10/09/2018 - 13/09/2019

Second level Master's in Science and Management of Climate Change

Ca' Foscari Challenge School, Ca' Foscari University, Venice (Italy)

2012 - 2014

Master's degree in Physics

Thesis: "Multiscale models of diffusion and production of defects in porous materials."

University of Padua, School of Science, Department of Physics and Astronomy (Padua, Italy)
Theoretical and modelling curriculum

2008 - 2011 **Bachelor's Degree in Physics**

Thesis: Accelerated protons and ions for radiotherapy and radiobiology.
University of Padua

2003 - 2008 **High School Diploma in Scientific Studies**

Liceo Scientifico "N. Tron", Schio (VI)

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B2	C1

Communication skills

▹ Good communication skills (verbal and written) gained through international meetings, training, teaching activities, and working among people of different cultures and ages.

▹ Good skills in working in teams, building valuable relationships, and strengthening networks gained through research project activities.

▹ Ability to adapt quickly to different environments and to integrate with the team.

Organisational / managerial skills

▹ Good research and data collection skills acquired during my studies and through experience in the research field.

▹ Good ability to plan and meet deadlines (organizing work and setting priorities) and flexibility gained from following research projects and working in different contexts.

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Independent user	Independent user	Independent user

Digital competences - Self-assessment grid

Computer skills

▹ **Data acquisition and analysis**: Python, Matlab, R, QGIS, Google Earth Engine.

▹ **Markup language**: LaTeX, basic knowledge of HTML.

▹ **Operating systems**: Microsoft OS, Mac OS.

▹ **Graphic program**: basic knowledge of Gimp, Adobe Photoshop and InDesign, Inkscape.

▹ **Certification**: ECDL.

Other skills: Immense respect for Nature and Earth. Love taking photos and creating pieces of Art. Enjoy sports. Love to travel and experience different cultures.

Driving licence: B

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003

APPENDIX A: LIST OF PUBLICATIONS

Publications

▷ S. Mazzocato and C. Daffara. Spatio-temporal monitoring of the microsurface modification in artworks under environmental forcing. *The European Physical Journal Plus*, 140(5), May 2025

▷ M. Cassetta, B. Rossi, S. Mazzocato, F. Vetere, G. Iezzi, A. Pisello, M. Zanatta, N. Daldosso, M. Giarola, and G. Mariotto. Deep-uv raman spectroscopy: A novel heuristic method to characterize volcanologically relevant glasses on mars. *Chemical Geology*, 2024

▷ S. Mazzocato, D. Cimino, and C. Daffara. Integrated microprofilometry and multispectral imaging for full-field analysis of ancient manuscripts. *Journal of Cultural Heritage*, 2024

▷ S. Mazzocato and C. Daffara. A method for spatially registered microprofilometry combining intensity-height datasets from interferometric sensors. *Sensors*, 2023

▷ C. Daffara and S. Mazzocato. Surface metrology based on scanning conoscopic holography for in situ and in-process monitoring the microtexture in paintings. *Sensors. Special issues*, 2022

▷ C. Daffara, S. Mazzocato, and G. Marchioro. Multiscale roughness analysis by microprofilometry based on conoscopic holography: a new tool for treatment monitoring in highly reflective metal artworks. *European Physics Journal Plus*, (4):430, 2022

▷ S. Mazzocato, G. Marchioro, and C. Daffara. Feasibility and performance analysis in 3d printing of artworks using laser scanning microprofilometry. *Acta IMEKO*, 2021

▷ S. Mazzocato, G. Marchioro, and A. Menegazzi.and C. Daffara. Optical microprofilometry optimized fo surface analysis and 3d printing of archeological objects. *Archeologia e Calcolatori*, 2021

▷ S. Mazzocato and C. Daffara. Experiencing the untouchable: a method for scientific exploration and haptic fruition of artworks' microsurface based on optical scanning profilometry. *Sensors*, 2021

▷ S. Mazzocato, G. Marchioro, and A. Menegazzi.and C. Daffara. Optical micro-profilometry for surface analysis and 3d printed replica of archeological artefacts. In *IMEKO, International Conference on Metrology for Archaeology and Cultural Heritage*, 2020

▷ S. Mazzocato. Modelli multiscala di diffusione e produzione di difetti in materiali porosi. *Conoscere, conservare, valorizzare. Il patrimonio religioso culturale*, Volume Terzo, 2017

▷ G. I. Zmievskaya, A. L. Bondareva, G. Maino, Claire G. Fiorotto, and S. Mazzocato. Experimental studies on damaging materials of cultural heritage and computer simula- tion of clustering defects (part i). *Cities of memory. Internation Journal on Culture and Heritage at Risk.*, March 2016

Conference contributions

▷ C. Daffara and S. Mazzocato. Use of power spectral density analysis on full-field optical profilometry for multiscale roughness characterization of artworks. In *InArt 2024*, 2024

▷ S. Mazzocato and C. Daffara. Can we unlock more information from interferometric sensors? feasibility and performance analysis. In *SPIE Optical Metrology*, 2023

▷ C. Daffara, S. Mazzocato, and G. Marchioro. Optical surface metrology for heritage science: proof of concept and critical-constructive discussion. In *SPIE Optical Metrology*, 2023

▷ S. Mazzocato and C. Daffara. Integrated microprofilometry and multispectral imaging for full-field analysis of ancient manuscripts. In *Technart 2023*, 2023

▷ S. Mazzocato and C. Daffara. A novel paradigma for accurate laser microprofilometry of polychrome artworks based on dual reflectance-heights surface dataset. In *LACONA XIII*, september 2022

▷ C. Daffara, S. Mazzocato, and D. Ambrosini. Focus-stacking system for 3d acquisition of sculptures and archaeological manufacts. In *IMEKO, International Conference on Metrology for Archaeology and Cultural Heritage*, 2021

▷ C. Daffara, S. Parisotto, S. Mazzocato, P. I. Mariotti, and D. Ambrosini. Thermal imaging in the 3-5 micron range for precise localization of defects: application on frescoes at the sforza castle. In *Optics for Arts, Architecture, and Archaeology (O3A) VIII*, 2021

▷ C. Daffara, S. Mazzocato, T. de Rubeis, and D. Ambrosini. A simple method for artworks monitoring by simultaneous speckle interferometry (espi) and speckle photography. In *Optics for Arts, Architecture, and Archaeology (O3A) VIII*, 2021

▷ S. Mazzocato, G. Marchioro, and A. Menegazzi.and C. Daffara. Optical micro-profilometry for surface analysis and 3d printed replica of archeological artefacts. In *IMEKO, International Conference on Metrology for Archaeology and Cultural Heritage*, 2020

▷ S. Mazzocato, G. Marchioro, and C. Daffara. La profilometria ottica per l'acquisizione della superficie su scala micrometrica ottimizzata per la stampa 3d e la fruizione tattile dell'opere d'arte. In *106 Congresso Nazionale, Società Italiana di Fisica*, 2020

▷ A.L. Bondareva, C. G. Fiorotto, T.V. Levchenko, S. Mazzocato, G. Maino, and G.I. Zmievskaya. Degradation phenomena in sandstone building materials. *Proposed paper for 41st International Symposium on Archaeometry, Kalamata (Greece)*, 2016

▷ N. Barbier, A.L. Bondareva, C. G. Fiorotto, T.V. Levchenko, S. Mazzocato, G. Maino, and G.I. Zmievskaya. On the porosity development in cultural heritage materials. *Proposed paper for 8th International Congree of Envirionmental Research, Luebeck (Germany)*, 2016

▷ N. Barbier, A.L. Bondareva, C. Fiorotto, T.V. Levchenko, G. Maino, S. Mazzocato, and G.I. Zmievskaya. On the porosity development in cultural heritage materials. *Proposed paper for Technart Conference, Catania*, 2015