

RACHELE MANGANELLI DEL FÁ

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SUMMARY

Architect and PhD in Science for Cultural Heritage Conservation, she is a permanent Researcher at the CNR–ISPC. Her work focuses on photogrammetry and 3D modeling integrated with non-invasive diagnostics for the documentation and conservation of cultural heritage. She specializes in image-based surveying and develops interdisciplinary digital solutions—such as digital twins and virtual reality applications—combining research, technology transfer, data management, and scientific communication.

WORK EXPERIENCE

Permanent Researcher 2018 – Present

- **Photogrammetric documentation and monitoring of Cultural Heritage**
Application of image-based 3D surveying techniques for diagnostics, deformation analysis, and condition assessment of artworks, monuments, and archaeological sites.
- **Digital innovation for conservation and enhancement**
Development of digital twins, VR applications, and interoperable platforms to support heritage management, interpretation, and preventive conservation within national and EU projects.
- **Scientific coordination and dissemination**
Research supervision, participation in multidisciplinary projects, and engagement in scientific communication, conference organization, and technical content production.

Fixed-term Researcher 2016 – 2018

- **Research Infrastructures and Data Governance (Horizon 2020)**
Engagement in European research infrastructures with emphasis on data standardization, interoperability, and management of heterogeneous digital resources within the humanities domain.
- **Advanced 3D Workflows and Interactive Visualization**
Implementation and assessment of SfM-based reconstruction, video-photogrammetry, and immersive visualization tools to support archaeological research and public engagement.
- **Applied Diagnostics and Capacity Building**
Contribution to conservation monitoring initiatives, digital communication strategies, and specialized training activities in image-based methodologies for heritage science.

Research Fellowship 2010 – 2016

- **Non-invasive Condition Assessment**
Use of micro- and close-range photogrammetry for quantitative surface evaluation and monitoring of conservation treatments across diverse heritage contexts.
 - **Integrated Diagnostic Approaches**
Implementation of imaging and sensing technologies to analyze material behavior and support evidence-based conservation strategies.
 - **Knowledge Transfer and Outreach**
Dissemination of research outcomes through digital media, editorial initiatives, and specialized training in advanced surveying methodologies.
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EDUCATION

PhD 2011 - 2013

PhD in Science for Cultural Heritage Conservation, 26th Cycle, Doctoral School in Sciences, conducted at the Institute for Conservation and Valorization of Cultural Heritage (ICVBC), National Research Council (CNR), Florence

Dissertation title: “Micro-photogrammetry for Monitoring the State of Conservation and Documentation of Cultural Heritage”

Date awarded: March 5, 2014

Postgraduate University Diploma**2006-2007**

University of Pisa, Department of Chemistry and Industrial Chemistry, Via Risorgimento 35, 56126 Pisa, Italy

Thesis title: "Restoration Interventions on the Porta della Mandorla in Santa Maria del Fiore from the 19th Century to the Present: Archival Research"

Date awarded: December 13, 2007

Main topics covered:

Conservation Science; Science and Technology of Natural Organic Materials (wood, textiles, paintings) and Inorganic Materials (glass, ceramics, metals, stone); Physical Methods for Diagnostics (non-invasive techniques and dating methods); Spectroscopic and surface analysis techniques applied to Cultural Heritage.

Master's Degree**1996 - 2006**

Master's Degree in Architecture (five-year single-cycle degree) University of Florence, Faculty of Architecture, Florence, Italy

Thesis title: "The Porta dei Cornacchini in Santa Maria del Fiore: History, Conservation, and Restoration Hypotheses"

Date awarded: April 21, 2006 — summa cum laude (110/110 with honors)

KEY SKILLS

- Quantitative 3D Documentation & Conservation Analysis
- Non-Invasive Diagnostic & Monitoring
- Digital Heritage Systems & Research Data Governance
- Interdisciplinary Research & International