

Alberto Bucciero, PhD

Researcher, Engineer – Software Engineering, Data Science & Digital Heritage

National Research Council of Italy (CNR) – Institute of Cultural Heritage Sciences (ISPC)

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 **Location:** Lecce, Italy

Professional Profile

Senior researcher and computer engineer with more than 20 years of experience in software engineering, data science, and the design of complex digital infrastructures for research and cultural heritage. Currently Researcher at the National Research Council of Italy (CNR-ISPC) and Adjunct Professor at the University of Salento. Scientific coordinator of national and European research infrastructures and projects, with a strong interdisciplinary background bridging artificial intelligence, data management, and humanities-oriented research. Extensive experience in coordinating multidisciplinary teams, designing FAIR data pipelines, and supporting applied AI solutions in heritage science and digital humanities.

Current Positions

Researcher (III level) – National Research Council of Italy (CNR)
Institute of Cultural Heritage Sciences (ISPC), Lecce | 2020–present

Scientific Coordinator, DHILab – Digital Heritage Innovation Laboratory
CNR-ISPC Lecce

Scientific Coordinator, SCIFAB Lab – Scientific Fabrication Laboratory
CNR-ISPC Lecce

Scientific Coordinator (for CNR), DI4CH Lab – Digital Innovation for Cultural Heritage
Joint laboratory with the University of Salento

Coordinator, DIGILAB@LE node of E-RIHS (European Research Infrastructure for Heritage Science)

Adjunct Professor – University of Salento | 2006–present
Courses in Big Data, Computer Science, Data Management, Software Engineering

Leadership and Coordination Roles

- Coordinator of the DIGILAB Working Group within E-RIHS-ISPC, involved in the design and implementation of the DIGILAB platform for heritage science research infrastructures.
- Scientific coordinator or WP leader in several national and European projects, including Horizon 2020 and PNRR-funded initiatives.
- Deputy Director and national reference for digital infrastructures in E-RIHS-related activities.
- Member of technical and scientific committees for international conferences and research initiatives.

Selected Research Projects

(selection)

- **H2IOSC – Humanities and Cultural Heritage Italian Open Science Cloud** (PNRR – NextGenerationEU)
Role: Scientific Coordinator (OR3) and WP Leader; Deputy Director for E-RIHS-related digital infrastructures.
Focus: Design of federated research infrastructures, FAIR data pipelines, and AI-enabled services for heritage science.
- **SSHOC – Social Sciences & Humanities Open Cloud** (Horizon 2020, GA 823782)
Role: Scientific Coordinator for the CNR-ISPC Lecce Unit.
Focus: Interoperable data services, open science platforms, and cross-domain integration for SSH research.
- **PON SHINE – Strengthening the Italian Nodes of E-RIHS**
Role: Coordinator of OR4 (DIGILAB).
Focus: Implementation of digital laboratories and national-scale services for the E-RIHS research infrastructure.
- **POR Hermes – HERitage sMart social mEdia aSsistant** (POR FESR Lazio 2014–2020)
Role: Principal Investigator.
Focus: AI-driven tools for cultural heritage communication, user engagement, and intelligent content delivery.
- **CHANGES – Cultural Heritage Active Innovation for Sustainable Society** (PNRR – NextGenerationEU)
Role: Senior Researcher, Spoke 5 (Science and technologies for sustainable diagnostics of Cultural Heritage).

Focus: Digital technologies, data-driven diagnostics, and innovation for heritage sustainability.

- **UNICHE – Unified No-Code platform for Interactive Cultural Heritage Experiences** (EU-funded project)

Role: Work Package Leader – WP4 (Technology integration and digital platforms).

Focus: Design and coordination of interoperable digital platforms, no-code tools, and AI-enabled services for interactive and experiential cultural heritage applications.

Research Interests

- Artificial Intelligence & Machine Learning
- Data Science & Big Data Analytics
- Digital Research Infrastructures
- FAIR Data & Open Science
- Digital Humanities & Heritage Science
- Software Architectures and Interoperability
- Context-aware and multimodal information systems

Selected Publications and Outputs

2025

- **Bucciero A.**, Chirivì A., Colella R., Emara M.S.S., Greco M., Jaziri M.A., Muci I., Pandurino A., Riminesi C., Santo Sabato S., Taurino F.V., Tucci G., Zecca D., *Real-Time Environmental Monitoring in Historical Semi-Confining Spaces: A Case Study of the SENNSE IoT Deployment in Florence*, **SOFTCOM 2025**.
- **Bucciero A.**, Chirivì A., Ferrari I., Giuri F., Greco M., Pandurino A., Pescarin S., Scardozzi G., Taurino F.V., Zecca D., *Il Museo Archeologico di Ugento fra valorizzazione e fruizione, Archeologia e Calcolatori*, 36(1), 2025. <https://doi.org/10.19282/ac.36.1.2025.19>
- Emara M., Castellini M., Riminesi C., Jaziri M.A., Pandurino A., Conti A., Fiorini L., Colella R., Taurino F., Zecca D., Giuri F., Meucci A., Tucci G., **Bucciero A.**, *IoT-Driven Digital Twin Based on VR for Smart Monitoring of Cultural Heritage Sites: La Grotta degli Animali in Florence Case Study*, in **Extended Reality – XR Salento 2025**, LNCS 15741, Springer.
- Emara M.; **Bucciero A.**; Catarinucci L.; Grassi G.; Colella R., *SPICE-Based Circuit Modelling and Validation of an NFC Energy-Harvesting Strain Sensor for Structural Health Monitoring*, **IEEE Sensors Journal**, 2025. <https://ieeexplore.ieee.org/document/11165086>

- Pietroni E., Chirivì A., Greco M., Pandurino A., **Bucciero A.**, Lupinacci A., Aloisi R., Cozza M., *The Illuminated Manuscripts Pilot Project: an Interdisciplinary Hub Integrated into the DIGILAB-IT Platform, Digital Heritage 2025*.

2024–2023 (selected)

- Bucciero A. et al., *H2IOSC Project: The Italian Federated Cluster for IoT-Based Monitoring and Digital Twinning of Cultural Heritage*, Int. Conf. on Smart and Sustainable Technologies, 2024.
- Pietroni E. et al., *An innovative approach to shape information architecture related to ancient manuscripts*, LNCS, Springer, 2023.
- Bucciero A., Demetrescu E., *An approach to extend the metadata schema of Zenodo for Cultural Heritage datasets*, Research Ideas and Outcomes, 2023.

Full publication list available upon request.

Teaching Experience

Adjunct Professor at the University of Salento since 2006, with teaching activities across undergraduate and graduate programmes in: - Big Data - Computer Science - Data Management - Software Engineering - Digital Technologies for Humanities and Cultural Heritage

Professional Service

- Member of Technical Program Committees for international conferences.
- Co-founder and chair of the Technical Program Committee of eLEOT – eLearning, e-Education and Online Training International Conference (2013–2017).
- Court-Appointed Technical Expert (CTU/CTP) for civil and criminal proceedings in Italy.

Education

- **PhD in Information Engineering** (2008) – University of Lecce
Thesis: *A Framework to Generate Heterogeneous Collaborative Web Environments*
- **Degree in Computer Engineering** (2002) – University of Lecce, 110/110
- Professional qualification as Engineer (Italy)

Technical Skills

- Programming & Software Engineering: Python, Java, Web-based architectures
- Data & AI: Machine Learning, Data Pipelines, Databases, FAIR data
- Research Infrastructures: Open Science Cloud, federated platforms
- Digital Heritage Technologies: GIS, IoT, XR, digital twins

Languages

- Italian: native
- English: professional proficiency

Affiliations

- Registered Professional Engineer (Italy)
- Member of E-RIHS research infrastructure community