

# Giulia Renda

PHD CANDIDATE IN CULTURAL  
HERITAGE IN THE DIGITAL  
ECOSYSTEM

## Contacts

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## Links

ORCID  
GitHub  
Unibo Profile

## Technical Skills

Semantic Web & Knowledge  
Graph Technologies:  
RDF, OWL, Linked Open Data  
SPARQL and federated querying  
Ontology design and modelling  
Entity reconciliation  
CIDOC-CRM  
RDFLib, SPARQLWrapper  
Blazegraph, Apache Jena Fuseki

Research Software Engineering &  
Backend Development:  
Python, Flask  
REST APIs, Service-oriented  
architectures, JSON-based APIs  
Configuration-driven systems  
Data ingestion and  
transformation pipelines  
Sonic indexing  
Git/GitHub workflows

Data Analysis & Computational  
Methods:  
pandas, NumPy, SciPy  
scikit-learn  
SBERT  
NLTK  
Statistical analysis  
Mixed-method analytical  
pipelines  
Custom metrics and evaluation  
frameworks

Data Visualisation & Frontend  
Development:  
D3.js, Chart.js, amCharts  
Matplotlib, seaborn, plotly,  
RAWGraphs  
Interactive narrative visualisation  
systems

## Bio

Digital Humanities researcher and developer specialising in Semantic Web technologies, multimodal and semantic cultural heritage data, and interpretive interfaces for research infrastructures. My work focuses on integrating Linked Open Data, visual analysis, and computational methods to support transparent and reusable approaches to cultural heritage interpretation. I have designed and developed modular systems for data storytelling, entity reconciliation, and exploratory access across heterogeneous datasets, contributing to international research infrastructures and collaborative Digital Humanities initiatives.

## Professional Experience

### PhD Candidate – Digital Humanities & Semantic Web at Unibo

2023 – JULY 2026

- Development of methods and systems for interpretive access to Linked Open Data in Cultural Heritage
- Design and evaluation of data storytelling environments combining SPARQL querying, visualisation, and narrative components
- Development of novel metrics for SPARQL proficiency and information visualisation literacy
- Participation in international collaborative projects and infrastructure development

#### Key projects:

- **Polifonia (H2020)** :
  - Development and consolidation of MELODY, a platform for authoring data stories over LOD [ [LINK](#)] [ [REPO](#)]
  - Contribution to the Polifonia web portal integrating and reconciling 9 knowledge graphs [ [LINK](#)] [ [REPO](#)]
  - Support for cross-collection exploration and interoperability within an international LOD infrastructure
- **CHANGES (NextGenerationEU)** :
  - Contribution to a reproducible workflow for digital twin creation in Cultural Heritage
  - Development of a service-oriented API layer extending MELODY for integration within 3D and virtual environments
  - Work on FAIR management of cultural heritage and 3D data

### Teaching Assistant @DHDK at Unibo

2022 – PRESENT

- Teaching Information Visualization (MSc): data extraction and analysis using RDFLib and SPARQLWrapper
- Teaching introductory courses: Internet Architecture and Git Systems
- MSc student tutoring and thesis co-supervision

### Information Visualisation Consultant at Federico Zeri Foundation

2024

- Research consultancy on art historical datasets (antiquarian networks) [ [LINK](#)]
- Data quality assessment and cleaning
- Development of interactive visualisations (maps, genealogical trees) for research and web dissemination

### Visiting PhD Researcher @Knowledge Media Institute at Open University

APRIL 2024 – JULY 2024

- Exploratory research at the intersection of explainable AI, visual analysis, and cultural heritage data
- Development of a pipeline combining Formal Concept Analysis, data visualisation, and visual saliency techniques [ [REPO](#)]
- Application to the Tate collection dataset
- Supervisor Enrico Daga

### Research Fellow @/DH.arc at Unibo

JavaScript, jQuery, React HTML5, CSS, Bootstrap

Cultural Heritage & Digital Humanities Infrastructures: Digital twins for Cultural Heritage Semantic catalogues  
Linked Open Data dissemination systems  
3D/VR integration workflows (ATON)  
FAIR data workflows  
Narrative visualisation systems

## Languages

Italian

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English

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French

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JULY 2022 – FEBRUARY 2023

- Backend developer for a LOD web portal (Polifonia project)
- Design of data ingestion and entity reconciliation pipelines
- Development of REST APIs and configuration-driven architecture
- Technologies: Flask, Blazegraph, Sonic indexing, React

### Research Intern @/DH.arc at Unibo

MARCH 2022 – APRIL 2022

- Fullstack development of MELODY (LOD storytelling platform)
- Backend: Flask, REST APIs, session management, scheduled tasks
- Frontend: jQuery, Chart.js for interactive data visualisation
- Data access: SPARQLWrapper, RDFLib for querying and processing Semantic Web data
- Features: dynamic narrative composition, SPARQL-driven components, HTML rendering
- Integration: GitHub API (PyGithub), HTTP requests (requests), CORS support

## Education

### PhD in Cultural Heritage in the Digital Ecosystem, Unibo

MARCH 2023 – JULY 2026

**Thesis:** *Narrative Visualisation as Epistemic Practice in the Semantic Web: Supporting Interpretive Practices in Cultural Heritage*

Supervisor: Prof. Marilena Daquino

Focus on interpretability, multimodal data integration, and infrastructural reuse of Semantic Web technologies, combining design methodology, empirical evaluation of learning practices, and API-based system development.

### MA Digital Humanities and Digital Knowledge, Unibo

2022

*MELODY: a Dashboard for Linked Data Visualization and Storytelling.*

Graduated with honours.

### BA History, Unibo

2017

*La funzione della Lex Curiata dei magistrati repubblicani: fonti antiche e storiografia moderna*

## Other Roles

### Reviewer

- **Journals** : Journal on Computing and Cultural Heritage, Journal of Web Semantics, Umanistica Digitale, SoftwareX
- **Conferences** : SEMANTiCS, DigitalHeritage, AIUCD

### Event Organiser

- Digital WHOmanities: chi sono e cosa fanno gli umanisti digitali (2020). A series of lectures and workshops on the present and future of the Digital Humanities. [ [LINK](#) ]
- Digital WHOmanities: STORIE DI DATI (2021). A series of lectures and workshops on creating, preserving, interpreting and visualising data in the humanities. [ [LINK](#) ]

## Invited Talks

- Building Knowledge Landscapes Across the Digital Humanities (seminar series) – “From Data to Meaning: Narrative Visualization for Critical Thinking in Semantic Web Learning” 5-7 November 2025. [ [PRESENTATION](#) ] [ [PROGRAM](#) ]
- Consortium for Open Research Data in the Humanities (CORDH) – “Storytelling with Linked Open Data: Communicating and Learning in the Semantic Web” 5 March 2025.

- Europeana (webinar) – presentation of the Polifonia Web Portal 11 July 2024. [ [PROGRAM](#) ]

## Speaker at Conferences

- XV AIUCD conference. Cagliari, 3-5 June 2026
- 22nd IRCDL conference. Modena, 19-20 February 2026 [ [PROGRAM](#) ]
- CHANGES final conference. Roma, 14-16 Jan 2025 [ [PROGRAM](#) ]
- XIV AIUCD conference. Verona, 11-13 June 2025 [ [PROGRAM](#) ]
- 21st IRCDL conference. Udine, 20-21 February 2025 [ [PROGRAM](#) ]
- CHANGES Conference. Rome, 23–24 Jan 2025
- XIII AIUCD conference. Catania, 28–30 May 2024 [ [PROGRAM](#) ]
- ACM Hypertext. Roma, 4-8 September 2023 [ [PROGRAM](#) ]
- XII AIUCD conference. Siena, 5-7 June 2023 [ [PROGRAM](#) ]

## Publications

- Ammirati, Luisa, Roberto Balzani, Giuliana Benvenuti, et al. 2025. *Implementation of Pilot Studies – Type B*. September 30. <https://doi.org/10.5281/zenodo.17237906>.
- Balzani, Roberto, Sebastian Barzaghi, Gabriele Bitelli, et al. 2024. 'Saving Temporary Exhibitions in Virtual Environments: The Digital Renaissance of Ulisse Aldrovandi – Acquisition and Digitisation of Cultural Heritage Objects'. *Digital Applications in Archaeology and Cultural Heritage* 32: e00309. <https://doi.org/10.1016/j.daach.2023.e00309>.
- Barzaghi, Sebastian, Alice Bordignon, Federica Collina, et al. 2025. 'A Reproducible Workflow for the Creation of Digital Twins in the Cultural Heritage Domain'. *Transformations: A DARIAH Journal Workflows* (July). <https://doi.org/10.46298/transformations.14773>.
- Barzaghi, Sebastian, Alice Bordignon, Bianca Gualandi, et al. 2024. 'A Proposal for a FAIR Management of 3D Data in Cultural Heritage: The Aldrovandi Digital Twin Case'. *Data Intelligence* 2: 1–32. <https://dx.doi.org/10.3724/2096-7004.di.2024.0061>.
- Barzaghi, Sebastian, Simona Colitti, Arianna Moretti, and Giulia Renda. 2025. 'From Metadata to Storytelling: A Framework For 3D Cultural Heritage Visualization on RDF Data'. In *Diversità, Equità e Inclusione: Sfide e Opportunità per l'Informatica Umanistica Nell'Era Dell'Intelligenza Artificiale*, edited by Simone Reborà, Marco Rospocher, and Stefano Bazzaco. AIUCD. <https://doi.org/10.6092/unibo/amsacta/8380>.
- Barzaghi, Sebastian, Federica Collina, Marilena Daquino, et al. 2023. 'Digitisation of Temporary Exhibitions: The Aldrovandi Case'. In *Eurographics Workshop on Graphics and Cultural Heritage*, edited by Alberto Bucciero, Bruno Fanini, Holger Graf, Sofia Pescarin, and Selma Rizvic. The Eurographics Association. <https://doi.org/10.2312/gch.20231176>.
- Barzaghi, Sebastian, Giulia Renda, Arianna Moretti, et al. 2026. 'CSV Datasets on Exhibited Objects and Digitisation Process from "The Other Renaissance – Ulisse Aldrovandi and the Wonders of the World" Temporary Exhibition Digital Twin'. Zenodo, January 9. <https://doi.org/10.5281/zenodo.18190642>.
- Battisti, Tommaso, Valentina Pasqual, Giulia Renda, and Marilena Daquino. 2026. 'Making Uncertainty Explicit: The Preservation of Interpretative Complexity across Digital Humanities Project Workflows'. *Proceedings of 15th Annual Conference of the Association for Digital Humanities and Digital Culture* (Cagliari).
- Daquino, Marilena, Giulia Renda, and Marco Grasso. 2024. *D1.10: Polifonia Web Portal – 2nd Version*. May 6. <https://doi.org/10.5281/zenodo.11120387>.
- Grasso, Marco, Marilena Daquino, and Giulia Renda. 2023. 'MELODY User Survey'. Zenodo, December 29. <https://doi.org/10.5281/zenodo.10442429>.
- Grasso, Marco, Marilena Daquino, and Giulia Renda. 2024. 'From Ontology Design to User Experience. A Methodology to Design Interfaces for Information Seeking Purposes'. *Umanistica Digitale*, no. 18: 53–85. <https://doi.org/10.6092/issn.2532-8816/19038>.
- Grasso, Marco, Giulia Renda, and Marilena Daquino. 2024. 'From Data Complexity to User Simplicity: A Framework for Linked Open Data Reconciliation and Serendipitous Discovery'. In *Me.Te. Digitali. Mediterraneo in Rete Tra Testi e Contesti*,

edited by Antonio Di Silvestro and Daria Spampinato. AIUCD.  
<https://arxiv.org/abs/2405.15520>.

- Lippolis, Anna Sofia, Davide Maria Apolloni, Milena Corbellini, et al. 2021. 'The Digital WHOManities Project: Best Practices for Digital Pedagogy in the Pandemic Era'. *Umanistica Digitale*, no. 10: 10. <https://doi.org/10.6092/issn.2532-8816/11829>.
- Pescarin, Sofia, Sebastian Barzaghi, Alice Bordignon, et al. 2024. *Implementation of Guidelines and Best Practices for Technology-Aided Narratives via Prototypes*. Zenodo. <https://doi.org/10.5281/zenodo.14251585>.
- Renda, Giulia. 2025a. 'Data Affordances in Digital Humanities Information Visualisation Practices – Reproducible Analysis'. Zenodo, December 12. <https://doi.org/10.5281/zenodo.17910955>.
- Renda, Giulia. 2025b. 'From Data to Meaning: Narrative Visualization for Critical Thinking in Semantic Web Learning'. Presentation. Figshare, November 6. <https://doi.org/10.6084/m9.figshare.30556094.v1>.
- Renda, Giulia, and Marilena Daquino. 2023a. *Polifonia-Project/Dashboard: V1.0.0*. V. v1.0.0. Zenodo, released. <https://doi.org/10.5281/zenodo.10037673>.
- Renda, Giulia, and Marilena Daquino. 2023b. 'Storytelling with Linked Open Data'. La memoria digitale. XII convegno annuale AIUCD, Siena, June 5. <https://doi.org/10.5281/zenodo.8070708>.
- Renda, Giulia, and Marilena Daquino. 2024. 'MELODY Data Stories and Anonymous Student Feedback Dataset'. Zenodo. <https://doi.org/10.5281/zenodo.14499992>.
- Renda, Giulia, and Marilena Daquino. 2025a. 'Educational Impact of Storytelling and Data Visualisation in the Interpretation of Humanities Data'. In *Diversità, Equità e Inclusione: Sfide e Opportunità per l'Informatica Umanistica Nell'Era Dell'Intelligenza Artificiale*, edited by Simone Reborà, Marco Rospocher, and Stefano Bazzaco. Quaderni Di Umanistica Digitale. AIUCD. <https://doi.org/10.6092/unibo/amsacta/8380>.
- Renda, Giulia, and Marilena Daquino. 2025b. 'Learning the Semantic Web with Tools for Information Visualisation and Data Storytelling'. In *IRCDL 2025. Information and Research Science Connecting to Digital and Library Science*, edited by Marcello Cornia, Giorgio Maria Di Nunzio, Donatella Firmani, et al., vol. 3937. CEUR Workshop Proceedings. <https://ceur-ws.org/Vol-3937/>.
- Renda, Giulia, and Marilena Daquino. 2025c. 'Ragù. Preserving Italian Cookbooks in a Sustainable Crowdsourced Digital Collection'. *Umanistica Digitale*, no. 20 (July): 405–18. <https://doi.org/10.6092/issn.2532-8816/21113>.
- Renda, Giulia, and Marilena Daquino. 2026a. 'Data Affordances in Digital Humanities Information Visualisation Practices'. *Proceedings of the 22nd Conference on Information and Research Science Connecting to Digital and Library Science*.
- Renda, Giulia, and Marilena Daquino. 2026b. 'Do Information Visualisation and Semantic Web Get on Well? A Study on the Usage of Storytelling Platforms to Improve Data Literacy Skills'. *Umanistica Digitale*, no. 22 (January): 1–23. <https://doi.org/10.60923/issn.2532-8816/21755>.
- Renda, Giulia, and Marilena Daquino. 2026c. 'Learning Data Storytelling and SPARQL in the Humanities: Tracking the Co-Evolution of Skills'. *Journal of Information Science*.
- Renda, Giulia, and Marilena Daquino. 2026d. *Polifonia-Project/Dashboard: V1.1.0*. Zenodo, released February 5. <https://doi.org/10.5281/zenodo.18495668>.
- Renda, Giulia, Marilena Daquino, and Valentina Presutti. 2023. 'Melody: A Platform for Linked Open Data Visualisation and Curated Storytelling'. *Proceedings of the 34th ACM Conference on Hypertext and Social Media* (New York, NY, USA), HT '23, 1–8. <https://doi.org/10.1145/3603163.3609035>.
- Renda, Giulia, Marco Grasso, and Marilena Daquino. 2023. 'From Ontology Design to User-Centred Interfaces for Music Heritage'. In *La Memoria Digitale: Forme Del Testo e Organizzazione Della Conoscenza*, edited by Emmanuela Carbé, Gabriele Lo Piccolo, Alessia Valenti, and Francesco Stella. AIUCD. <https://doi.org/10.48550/arXiv.2306.12973>.
- Renda, Giulia, Marco Grasso, and Marilena Daquino. 2024. *Polifonia-Project/Portal: V1.0.0*. Zenodo, released January 3. <https://doi.org/10.5281/zenodo.10454048>.
- Renda, Giulia, Giulia Manganelli, Mila Fumini, and Marilena Daquino. 2024. 'Preserving Culinary Traditions. A Crowdsourced Digital Collection of Cookbooks'. In *Me.Te. Digitali. Mediterraneo in Rete Tra Testi e Contesti*, edited by Antonio Di

Silvestro and Daria Spampinato. AIUCD.

<https://doi.org/10.48550/arXiv.2501.12786>.