

Nicola Carboni

Curriculum Vitae

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Research and Professional Experience

- Aug 2022 - **Lecturer**, *University of Geneva*, Geneva, Digital Humanities
- Feb 2021 - **Postdoctoral Fellow**, *University of Geneva*, Geneva, Digital Humanities.
- Constructing and analyse a large corpus of image to study visual globalisation.
 - Exploring models, algorithms and tools for computing the circulation of artworks across time and space.
 - Integrating Machine Learning output for visual similarities within Knowledge Graphs.
- July 2018 - Dec 2020 **Research Fellow**, *University of Zurich*, Zurich, SARI.
- Development of a framework for a distributed system of reference resource.
 - Ontological patterns for standardising reference information
- Jan. 2019 - Sept. 2019 **Data Architect**, *IUAV University*, Venice, Burckhardt Source.
- Developed a semantic model for the correspondence of Jacob Burckhardt.
- Feb. 2018 - June 2018 **Digital Humanities Fellow**, *Harvard University*, Florence, Harvard Center for Italian Renaissance Studies.
- Modeling of Iconographic & Symbolic items in visual heritage.
- June 2014 - July 2017 **EU Marie Curie Early Stage Researcher**, *CNRS*, Marseille, MAP Laboratory.
- ITN-DCH project: **Initial Training Network for Digital Cultural Heritage**.
 - Created a framework for the description of tangible and intangible cultural objects.
 - Developed a CIDOC-CRM extension for iconographic & symbolic meaning of cultural objects.
 - Analysed and developed of a metadata set for the registration of provenance information in 3D processing.
- Nov. 2013 - May 2014 **Data Curator and Modeler**, *Informatica Trentina*, Trento, Italy, Open Data project.
- Development a bottom-up ontology for describing public data.
 - Data cleaning, refinement mapping and enrichment.
 - In charge of data publication and responsible for the development of guidelines for data providers.
 - Coordinating the information architecture and workflow of of the catalog & collaborating in the EU FP7 Fusepool project.

Research Visit

- Apr. 2017 **Researcher**, *NTUA, National Technical University of Athens*, Athens, Greece.
- Testing of OpenCV for ontology-based semantic tagging of elements in 2D images.
- Feb. 2016 **Researcher**, *3DOM, Fontazione Bruno Kessler (FBK)*, Trento, Italy.
- data acquisition and processing for image-based modeling and web visualisation of 3D point clouds. Data enrichment and provenance information.

- Feb. 2015 **Researcher**, KAAK, German Archeological Institute (DAI), Bonn, Germany.
 · Data management and modelling. CIDOC-CRM: MAArch3D project.
- Jan. 2015 **Researcher**, FORTH ICS, Heraklion, Greece.
 · Ontology engineering and data integration with CIDOC-CRM.

Education

- Jun 2014 - July 2020 **PhD, School of Engineering - Topography, CNRS & NTUA**, France, Greece.
 · *Thesis title*: Conceptualization and Semantic Description in Digitized tangible/intangible Content.
 · *Supervisor*: Livio de Luca, CNRS Direction, CNRS MAP, Marseille
 · *Objective 1*: How do we assign meaning to the visual heritage.
 · *Objective 2*: How do we formalise the relationship between meaning and visual heritage.
 · *Objective 3*: How do we spatialise semantic information in a three-dimensional representation.
 · *Objective 4*: How do we assess the relationship between the digitised visual heritage and the original artefact.
- Sept. 2011 - Oct. 2013 **International MA in Digital Library Learning, DILL**, Oslo, Tallinn, Parma, Erasmus Mundus.
 · *Major*: Digital library.
 · *Thesis title*: Digital preservation network: a case study about CLOCKSS.
 · *Thesis content*: Interviews, document and workflow analysis about the usage, the governance, and the trends of CLOCKSS as main distributed network for the digital preservation of e-journals.
- Universities involved**
- Oslo Metropolitan University, OsloMet**, Oslo, Norway.
 · *Courses include*: Ontology creation, Linked Open Data, RDF, Metadata, Usability studies.
- Tallinn University, TLU**, Tallinn, Estonia.
 · *Courses include*: Knowledge management and business oriented information management.
- Università di Parma, UNIPR**, Parma, Italy.
 · *Courses include*: UX, project management, KPI and evaluation methods, digital library management.
- Sept. 2007 - Sept. 2010 **Bachelor in Cultural Heritage Science, UNIPI**, Pisa, Italy.
 · *Major*: Cultural Heritage Science.
 · *Courses include*: Information science, knowledge organisation, textual bibliography, cataloguing, history of art, literature, ethnography, history.

Funding

Project **TextEnt - TEXTual ENTities in time**, *University of Geneva*, 2024.

- *Funding*: Swiss National Science Foundation - SPARK
- *Co-PI*: Simon Gabay
- *Amount*: 100.000 CHF
- *Period*: from 01/03/2024 to 01/03/2025
- *Description*: The project focus on the development of a Computational Atlas of Francophone Literature, i.e. a reusable analytical framework for the study and representation of the dynamicity of the geographic horizon in literature. The project will build a pipeline for the extraction, disambiguation, validation and projection in time of textual toponyms using a combination of NLP (Natural Language Processing) and Linked Data. The output will help study the geography of literature at scale, discovering how authors have used place names over time, and thus how their outlook on the world has evolved and how they have reshaped their past.

Teaching

Course **Digital Art History**, *University of Geneva*, From 2023-24.

- The course introduces students to current projects and practises in digital art history, as well as methods for conducting art historical research using the digital. Students will experiment with software and tools, discuss the benefits of the digital, emerging trends and developments in the discipline, as well as debate the problems and shortcomings of current methods. The use of digital methods in art history will be presented through the analysis and discussion of prominent international projects, focusing on those that employ techniques, tools, and methods to analyse (i) large-scale visual sources (remote reading and viewing), (ii) urban, architectural and cultural heritage (3D reconstruction and analysis), (iii) textual sources (HTR and text processing), (iv) social relations (analysis of artist networks), (v) museum collections (data science).

Course **Digital Images**, *University of Geneva*, From 2022-23.

- This year-long course focuses on the computational properties, history, management, and analysis of digital images. In the first semester, students receive an introduction to images, image production, image characteristics, and material and representational properties. As the course progresses, students learn how to build an image corpus using open resources (Openverse, museum collections, Wikimedia Commons/Wikidata, social networks) and computational tools (SPARQL, APIs, scraping, Python). Students will learn how to organise, describe, and share their image collection using metadata sets, open source software (Tropy), databases (Omeka-S), and shared protocols (IIIF). In the second semester, students are introduced to computational photography and the use of AI and data analytical tools for image production and analysis, with an emphasis on automatic classification and spatio-temporal investigation. The course continue by analysing digital exhibitions, the market for digital images (NFT), and the role of AR/VR in image exploration.

- Course **Knowledge Graph and Knowledge Representation**, *University of Geneva*, From 2021-22.
- The course focuses on the use of knowledge graphs to integrate, enhance, analyse, and share data. At the beginning of the course, students are introduced to data modelling and graph technologies. As the course progresses, students will work collaboratively to integrate and analyse cultural heritage data using graph technologies and tools (Neo4J/RDF). The initial corpus is transformed in RDF and then analysed using a set of technologies and libraries (SPARQL, Python, and networkX). At the end of the course, students will be introduced to Graph Data Science and graph algorithms for computing basic statistics about interconnections in the graph.
- Course **Data Curation & Analysis, *previously Biases in Digital Collection***, *University of Geneva*, From 2021-22.
- The course focuses on the detection of bias in cultural collection through the application of data engineering and data analysis methods. The initial part of the course addresses the concept of bias, specifically focusing on materiality, classification, nomenclature, and decision making, and discusses how to detect these biases in digital collections. Following this initial introduction, students start to analyse open cultural data, learning normalisation and reconciliation methods as well as data engineering. The resulting dataset is then visualised using quantitative maps and temporal charts. Using data visualisations, the dataset is analysed to determine if and how the collection addresses or reflects the biases discussed in the course.
- Workshop *La gestion numérique des images: collecte, gestion et traitement, analyse* at the Programme doctoral en études numériques held in *Geneva, Switzerland*
- Summer school *Integrating Human Science Data using CIDOC-CRM as Formal Ontology: a practical approach* at the European Summer University in Digital Humanities held in *Leipzig, Germany*
- Workshop *Workflow for the Integration of Heritage Digital Resources — Olimje*, *Slovenia*

Publications

Journals

upcoming

- 2025 Nicola Carboni. *Digital Methods for the Analysis of Model-T Image Circulation*. - *Journal of Transport History*, forthcoming
- 2025 Béatrice Joyeux-Prunel. Marie Barras. Nicola Carboni. *Illustrated Periodicals and Art circulation in the XXth Century - Život umjetnosti*, forthcoming
- 2023 Béatrice Joyeux-Prunel. Marie Barras. Nicola Carboni. *Une Europe par les arts ? Les périodiques illustrés au-delà du Musée imaginaire* - *Artl@s Bulletin*, submitted
- 2024 Nicola Carboni. *Reconstruction and Analysis of Iconographic Corpora using Linked Open Data* - *Open Library of Humanities Journal*, forthcoming
- 2024 George Bruseker, Matthew Fielding, Nicola Carboni, Denitsa Nenova, Thomas Haensli. *Creating Understandable, Reusable and Sustainable Semantic Data Models: The Semantic Reference Data Modelling Method* - *International Journal on Digital Libraries*, submitted

- 2023 Nicola Carboni. *The Mediatization of the Early Automobile: A Visual Analysis of the Illustrated Press in the late 19th and Early 20th century* - *Artl@s Bulletin*, submitted
- 2023 Béatrice Joyeux-Prunel, Nicola Carboni. *Plotting the Geopolitics of 20th-c. Modern and Avant-Garde Illustrated Periodicals. Distant and Close Viewing and the Issue of Centres and Peripheries* - *Journal of European Periodical Studies*, submitted
- [published](#)
- 2023 Béatrice Joyeux-Prunel, Nicola Carboni, Adrien Jeanrenaud, Cédric Viaccoz, Céline Belina, Thomas Gauffroy-Naudin and Marie Barras. *Un œil mondial? La mondialization par l'image au prisme du numérique - le cas du projet Visual Contagions* - *Sociétés et représentations*, 55
- 2021 Nicola Carboni, Angelica Federici, and Giuditta Cirnigliaro. *Tacita Dean's Buon Fresco: developing a digital Atlas on The life of Saint Francis Fresco cycle in the upper Basilica of Saint Francis of Assisi*, *Linguistica e Letteratura*, XLVI(1/2).
- 2021 Sigrid Mirabaud, Alexandra Stoleru, Claire Bosc-Tiessé, Nicola Carboni, François Guéna, Tommy Messaoudi. *Vers la formalisation d'un modèle ontologique pour la description des églises rupestres peintes d'Éthiopie - Histoire de l'art - "Humanités numériques: de nouveaux récits en histoire de l'art?"*, 87
- 2019 Nicola Carboni, Livio De Luca. *An Ontological Approach to the Description of Visual and Iconographical Representations*, *Heritage*, 2(2)1191–1210.
- 2017 George Bruseker, Nicola Carboni, Anais Guillem. *The Role of Formal Ontology and CIDOC CRM, Heritage and Archaeology in the Digital Age*, pages 93-131. Springer, 2017.
- 2017 Nicola Carboni, Livio De Luca. *Towards a Semantic Documentation of Heritage Objects through Visual and Iconographical Representations*, *International Information Library Review*, 49(3).
- 2016 Nicola Carboni, Livio De Luca. *Towards a conceptual foundation for documenting tangible and intangible elements of a cultural object*, *Digital Applications in Archaeology and Cultural Heritage*, 3(4):108–116.
- 2016 Nicola Carboni et al. *Data Provenance in Photogrammetry Through Documentation Protocols*, *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences*, Volume III-5:57–64.
- 2015 George Bruseker, Anais Guillem, Nicola Carboni. *Semantically Documenting Virtual Reconstruction: Building a Path to Knowledge Provenance*, *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences*, II-5/W3:33-40.
- [Conference](#)
- 2024 Nicola Carboni. *Data-based Analysis of Iconographic Types and Variations* - *Renaissance Society of America*, Chicago, United States

- 2023 Nicola Carboni, Thibault Usel, Béatrice Joyeux-Prunel. *Linked Open Data pour l'intégration d'informations spatio-temporelles sur les expositions - Humanistica 2023*, Geneva, Switzerland
- 2023 Nicola Carboni, Thibault Usel, Béatrice Joyeux-Prunel. *Pister des circulations visuelles à l'échelle mondiale. Méthode et premiers résultats du projet Visual Contagions - Humanistica 2023*, Geneva, Switzerland
- 2023 Nicola Carboni. *A computational analysis of image globalization: the impact of images in the periodical press - Seventh European Congress on World and Global History 2023*, Den Haag, Netherlands
- 2023 Nicola Carboni. *Analysis of the Material Limitations of Data Infrastructures: Overcoming the Database - From Hype to Reality: Artificial Intelligence in the Study of Art and Culture*, Zurich, Switzerland
- 2023 Nicola Carboni, Béatrice Joyeux-Prunel. *Integration and analysis of exhibition information using Linked Open Data - Semantic Web, Cultural Heritage, and Art Historical Knowledge: Conceptual Models, Ontologies, and Epistemological Implications*, Malaga, Spain
- 2023 Nicola Carboni. *The Mechanics of Image Study: Analysing Image Circulation across Large Corpora of Visual Data - Woodcuts. Studying the Images of Popular Prints: Methods and Theory*, Valencia, Spain
- 2023 Nicola Carboni, Béatrice Joyeux-Prunel, Marie Barras. *A Computational Analysis of the Transmission and Impact of Images in the Periodical Press - College Art Association Conference*, New York, United States
- 2023 Thibault Usel, Nicola Carboni, Béatrice Joyeux-Prunel. *Linked Open Data for Horizontal Integration of Exhibition Information - The Art Museum in the Digital Age*, Vienna, Austria
- 2022 Nicola Carboni, Béatrice Joyeux-Prunel. *Images in Global Circulation: A Multi-Scalar Approach - Digital Art History IV*, Zagreb, Croatia
- 2022 Nicola Carboni, Angelica Federici, Giuditta Cirnigliaro. *Tacita Dean's Buon Fresco: developing a digital Atlas on The life of Saint Francis Fresco cycle in the upper Basilica of Saint Francis of Assisi - Renaissance Society of America*, Dublin, Ireland
- 2022 Nicola Carboni. *The Rise of the Machine - Thinking Europe Visually*, Ecole normale Supérieure de Paris, Paris, France
- 2022 Nicola Carboni. *Exploring the Visual with Formal Ontologies*, at the Narrative Digitaler Objekte: Kunstgeschichte Und Digital Humanities - 5th Swiss Congress for Art History, University of Zurich, Zurich, Switzerland
- 2022 Nicola Carboni, Maurizio Ghelardi. *Textual datification: the case of Burckhardt-Source*, at the Kunstwissenschaftliche Editionen im digitalen Zeitalter workshop - 36th Congress of German Art Historians 2022, University of Stuttgart, Stuttgart, Germany
- 2021 Nicola Carboni. *An Ontology for the Description of Visual Heritage*, at the New Directions in Digital Visual Studies: (en)coding Heritage Seminar Series - TORCH | The Oxford Research Centre in the Humanities, University of Oxford, Oxford, United Kingdom

- 2020 Nicola Carboni, George Bruseker. *Representation for reference entity-types: introducing the Semantic Reference Data Models*, CIDOC Conference, Museum of Art and History of the City of Geneva, Geneva, Switzerland
- 2019 Nicola Carboni. *Using Semantic Web Technologies for the Classification of Tangible and Intangible Elements of an Iconographical Representation*, at Bits and Bites 4th Swiss Congress for Art History.
- 2019 Nicola Carboni, Susanne Muller, and Maurizio Ghelardi. *Towards a Foundation for Documenting Digital Textual Resources with CIDOC-CRM*, at the workshop *Scholarly Digital Editions, Graph Data-Models and Semantic Web Technologies*.

Lectures

- 2023 *Temporal Uncertainties* at the *RDF & Linked Data Seminar* held at the *University of Geneva, Geneva, Switzerland*
- 2022 *Images in Global Circulation: A Multi-Scalar Approach* at the *Data Science Day* held at the *University of Geneva, Geneva, Switzerland*
- 2022 *A data-driven approach to the study of images circulation* at the *Digital History - Data for History Lectures series* held at the *Humboldt University of Berlin, Berlin, Germany*
- 2022 *Historical semantic data: challenge and possibilities* at the *Digital Humanities PhD Seminar* held at the *Knowledge Organization Systems - Department of Computer Science, University of Geneva, Geneva, Switzerland*
- 2021 *Using formal ontologies to explore visual culture(s)* at the *Digital Humanities PhD Seminar* held at the *EPFL - Swiss Federal Institute of Technology, Lausanne, Switzerland*
- 2021 *Documenting heritage* at the *Research Seminar Art in the making* held at the *Institut national d'histoire de l'art, Paris, France*
- 2019 *Digital Art History* at the Summer school *Stucchi E Stuccatori Ticinesi a Roma - Dalla riscoperta cinquecentesca alla grande tradizione barocca* held in *Rome, Italy*
- 2019 *Linked data for Digital Humanities* at the Master *Comunicazione Storica: televisione e multimedialità* held in *Rome, Italy*
- 2019 *3D Visualisation and Annotation* at the *Sixth CORDH Workshop - Villa i Tatti, Harvard* held in *Florence, Italy*
- 2017 Lesson on *Digital Heritage* within the *Digital Library Learning MA — Online*
- 2016 Presentation on *Description of linked data and "historical metadata" in 3D modellings* within the *Parthenos Workshop* held in *Bordeaux, France*
- 2015 Presentation on *Interlinking physical and conceptual dimensions of heritage artefacts into semantically-enriched representations* within the *Museums as Cultural, Urban, Creative and Learning Interface* held in *MuCEM, Marseille, France*

Organization

- Roundtable *Ouvrir les musées au(x) numérique(s) - Humanistica 2023 — Geneva, Switzerland*

- Conference Humanistica 2023 — *Geneva, Switzerland*
- Seminar Styles Revisited: From Iconology to Digital Image Studies. 2022-2023
Artl@s/Visual Contagions Research Seminar — *online*
- Seminar Styles Revisited: From Iconology to Digital Image Studies. 2021-2022
Artl@s/Visual Contagions Research Seminar — *online*
- Conference ITN-DCH - Digital Heritage 2017 Final Conference — *Olimje, Slovenia*
- Workshop Workflow for the Integration of Heritage Digital Resources — *Olimje, Slovenia*

Exhibitions

- Digital Curation and Coordination "*Visual Contagions. Images in Globalization.*" -
Exhibition organised with Jeu de Paume Museum - Paris, France.
- Digital Curation and Coordination "*The images that shaped Europe*" - Exhibition
organised with Europeana Foundation - Den Haag, Netherlands.

Languages

- Italian Native
- English Fluent
- French Intermediary

Editorial

- Member Editorial Advisory Board - Digital Library Perspectives
- Member Editorial Board of Linked Art

Direction

- Co-director Artl@s project
- Co-director TextEnt

Memberships

- Member CIDOC-CRM Special Interest Group
- Member Digital Art History Society
- Member Renaissance Society of America
- Member Association Francophone des Humanités Numériques