

DIGITIZING MODERNIST HERITAGE

Interdisciplinary Approaches to the Conservation of Miguel Ángel Roca's Architecture

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ABSTRACT: This study investigates the vulnerability of modernist architectural heritage and the multifaceted challenges it faces in contemporary society. The analysis focuses on the inherent difficulties of conserving these structures, considering their cultural and historical significance alongside the need for adaptation to current social, functional, and regulatory requirements. Through the lens of a key case study, the architectural legacy of the distinguished Argentine architect Miguel Ángel Roca, the research examines how digitization can address these challenges by generating multi-scale and multi-resolution models that support detailed analysis and conservation strategies. The research stems from an interdisciplinary collaboration among the National University of Córdoba in Argentina, the University of Salerno, and Federico II University of Naples in Italy. It showcases the potential of digital tools for modernist heritage conservation, providing innovative solutions for its management, enhancing community engagement, and establishing a comprehensive digital archive. This archive ensures the long-term preservation and dissemination of Roca's work, contributing to future research and educational initiatives. By integrating digital technologies, the study addresses the technical, social, and economic challenges associated with heritage conservation. The creation of detailed digital archives offers a sustainable framework for managing modernist architecture, ensuring its adaptability to contemporary demands while preserving its historical integrity. Furthermore, this research aligns with the objectives of the journal's special issue, *Imperfect Modernism*, by exploring how changing social and political conditions across different countries shape contemporary attitudes toward modern architecture. It explores weaknesses in preservation and protection practices that can affect its legacy, and the challenges and solutions inherent in its conservation, and highlights how the interdisciplinary and digital methodologies introduced set new standards for the sustainable management of architectural heritage, promoting a balance between conservation and the need for modernization in response to evolving societal needs.

KEYWORDS: Community engagement, digital archive, interdisciplinarity collaboration, Latin American architecture, Miguel Ángel Roca

INTRODUCTION: This study explores the vulnerability of modernist architectural heritage, with a specific focus on the work of renowned architect Miguel Ángel Roca (M.A.R) in Córdoba, Argentina. Roca started his career in the 1960s under the profound influence of his mentor, Louis Kahn. In Latin America, Roca's architectural projects are seen as symbols of progress, innovation, and social transformation. However, his work faces significant challenges in today's society, which are driven by urban pressures, shifting cultural values, and evolving social demands.

Modernist architecture, which started to emerge in the late 1950s, marked a departure from traditional design ideals, championing functionality, simplicity, and the use

of new materials and technologies. For Roca, Modernism was both a technical and artistic pursuit, shaped by his familial influences and his time working with Louis Kahn, whose work represented a synthesis of humanistic values with innovative design principles [FIGURE 01].

This work investigates how modernity entered South American culture and the complex legacy it presents today, particularly through the figure of Miguel Ángel Roca (*1936).

An internationally renowned architect and professor of architecture, Roca has always balanced his professional practice with a passion for teaching and the progression of the university academy. He has taught at



01 Louis Kahn and Miguel Ángel Roca. Kahn's architectural influence was key to Roca's work. © Authors' elaboration.



02 Roca's projects, depicting the effects of time, urban transformations, and social neglect. © Authors' Elaboration.

several universities, including the Faculty of Architecture, Urbanism and Design of the National University of Córdoba, where he served as dean for ten years (1992-2002) (Roca, 2025).

In addition to his academic career, Roca's architectural works are predominantly found in Córdoba, though his practice has spanned globally, including projects in

France, South Africa, Singapore, Hong Kong, Uruguay, Morocco, Bolivia, and Chile (Roca et al., 1981; Roca, 1984; Roca et al., 2000; Taylor, 1992).

Today, while his figure and work are studied in the most prestigious schools of architecture, Roca is involved in an Architecture design studio at the Faculty of Architecture, Design and Urbanism at the University of Buenos Aires

as a consulting professor (Roca & Sardin 2025). Deeply committed to promoting architectural culture both within Argentina and internationally through seminars and conferences, he generously welcomes hundreds of students every year to his Summer House in Calamuchita Valley, near Córdoba, which is considered a manifesto of his architectural philosophy (Fizman, 2007).

Roca's digital archive is being developed through collaboration between universities in Argentina and Italy; an innovative project for an architect still alive and one of the few of its kind for architects of the last century.

While modernist architecture's mature form struggles to be acknowledged as heritage, its recognition is even more challenging in regions where it was absorbed by distinct cultures at different times with varying outcomes (Roca, 1995; Roca, 2005).

The digitization of Roca's archive is not only a crucial preservation tool, ensuring the continued relevance of his original work amidst evolving social needs, but also a vital means of safeguarding unpublished materials that document key urban transformations and political contexts spanning several decades [FIGURE 02]. Moreover, this archive acts as a bridge to modernize Roca's pedagogical legacy, offering a valuable resource to inspire and inform future generations of architects.

This is possible by creating a multidisciplinary working group that combines different expertise, with a strong focus on digital tools. The team also involves young researchers and students who, through this work, can develop new studies, interpretations, and future research opportunities across several countries and different higher educational institutes.

The aim of the work is to propose Roca's digital archive as a best practice for addressing the topic of imperfect Modernism and to approach it from a different perspective that combines legacy, knowledge, and the transmission of values for the next generation of architects and scholars.

ROCA & THE IMPERFECT MODERNISM

In one of the books dedicated to Roca's work, the Italian architect Giancarlo de Carlo mentions his first meeting with Roca (Roca, 1994). During their conversation, de Carlo asks whether Roca considers his work influenced by Spanish architectural traditions, suggesting the possible handover of European architectural principles to America as a legacy of colonialism. Roca responds that he has never asked himself this question, emphasizing that he is an Argentine architect. De Carlo then reflects on the issue of the globalization of architectural principles, recognizing instead in Roca's work a specific personal character, a lesson of Modernism absorbed and transferred within the local context with original characters.

This story is meaningful in relation to the topic of the perception of the modernist lesson beyond the geographical areas where it was born and where its most important protagonists worked.

In this context, the Roca's role has a special profile. He was born in Córdoba in 1936; he was educated at the historic university of his hometown, where he graduated from the Faculty of Architecture in 1965; he obtained a master's degree in architecture and urban design (1966/67) at the University of Pennsylvania (Roca, 2025).

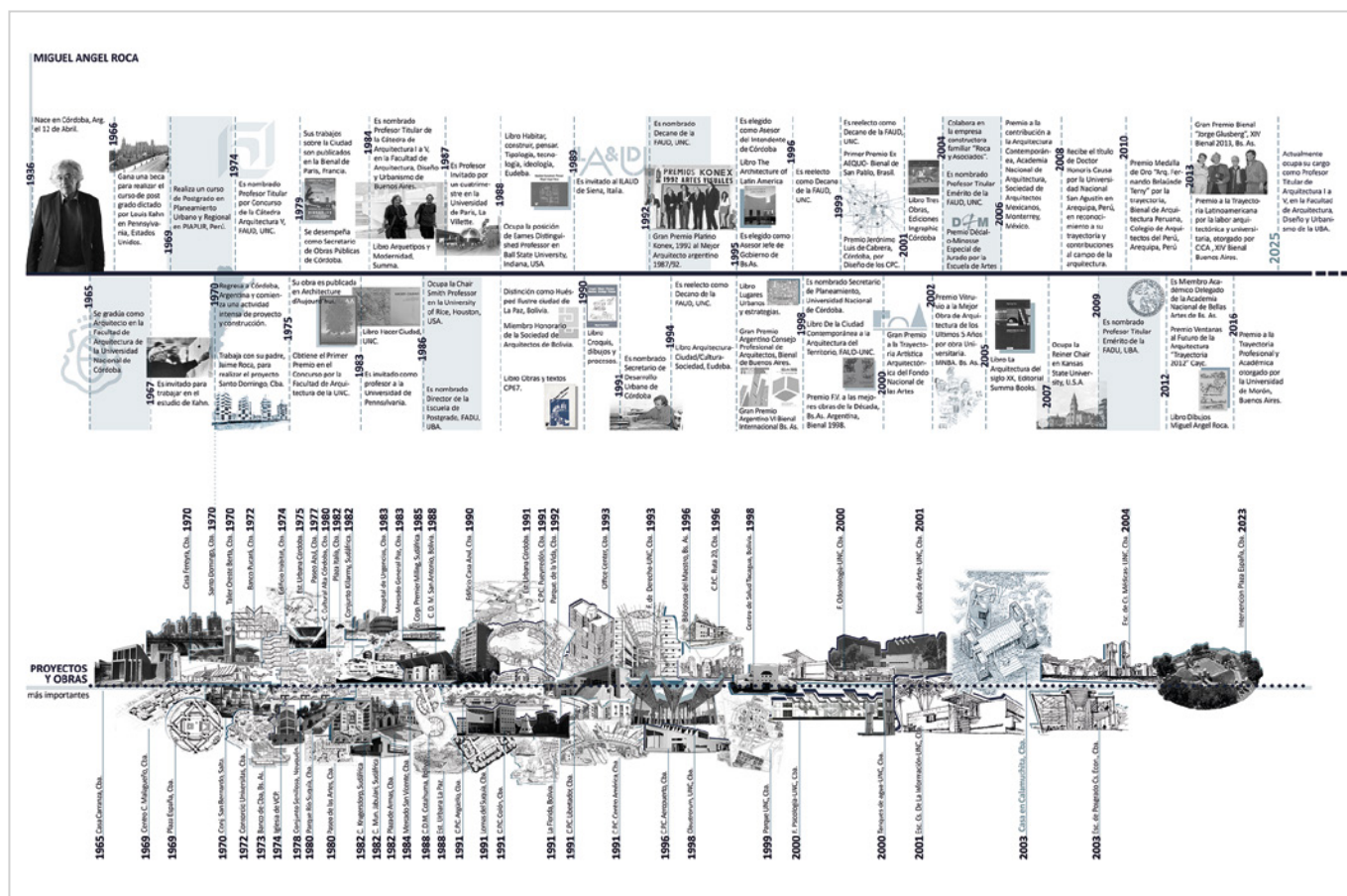
His studies were influenced by the modernist movement, from which he distanced himself, achieving autonomy and a distinctive character, which makes it difficult to categorize his work within a single style. In this sense, rather than trying to precisely define him belonging to a historical style, the aim is to emphasize the continuity of his research, which begins with Modernism and, with continuity, informs and structures his thinking on architecture and the city throughout his career as both a professional and an academic.

He believes that his father, Jaime, also an architect, had very little influence on his own style (AA.VV., 2005). Jaime Roca was an important architect and professor at the National University of Córdoba, where he served as dean for several years. Jaime is credited with having a strong influence on the search for local authenticity in the spread of modernity in Argentina (Rúa et al., 2016). Miguel, on the other hand, acknowledges his mother, Rosa Malvina Ferreyra de Roca, a distinguished artist from Córdoba, her work as a painter, and her circle of artist friends who frequented their home, as a strong influence (AA.VV., 2005). Roca first developed a passion for painting and initially applied to the Faculty of Philosophy, but after a trip to Italy, still very young, he decided to become an architect [FIGURE 03].

In 1968, Roca was in Philadelphia, where he worked at Louis Kahn's studio, having met the architect as a professor during his master's years at the university in the same city. Their relationship had a significant influence on his work. As Roca himself states, although they were not particularly similar, they recognized and valued their differences (Roca, 1984).

From Kahn's lesson, he learnt the relationship with modernity, which is not a negation of history, but rather a search for continuity that goes through the exploration of forms and motifs reinterpreted in a modern key. In this sense, as emphasized in his book about Kahn, modernity is read in continuity with history and as an essential part of the architectural tradition (Roca, 1984).

In Roca's opinion, architecture must necessarily involve a specific phase—that in which the project is built—and designers are embedded in their contemporary world of



03 Timeline of Roca's architectural journey. © Keila Nahir Trevisan, 2025.

construction materials and connections with the workforce and their lives on the construction site (Roca, 1988).

Córdoba, his city, has had the greatest impact on his work. Especially during his public assignments as Secretary of Public Works of Córdoba in the 1970s and 1980s and, ten years later, as Secretary of Urban Development of Córdoba (Waisman, 1973; Waisman, 1982; Roca, 1989). These experiences allowed him to develop essential plans for transforming the city, modifying its character and anticipating ideas and trends in urban design that subsequently influenced many cities in Europe and America (Gaggiano, 1976; Roca, 1985).

In the first part of the public works program, continuing the work of architect Hugo Taboada¹ he carried out an important project for the pedestrianization of the historic center, with punctual projects for the renewal of squares, such as *Plaza de Armas*, and the reuse of disused buildings, such as the *Mercado de la República de San Vicente*, to transform them into public spaces with a symbolic value for the city and into cultural centers (Glusberg, 1982; Waisman, 1987; Wagner, 1984). The project includes a new park around the Suquia River as a structuring element of the city's urban pattern.

The second part of his program focused on the periphery, with the decentralization of services and the construction of CPCs—Centros de Participación Comunal (Participatory Community Centers)—as symbolic places for community building (Gaggiano, 1994). The CPCs are

characterized by purist volumes and bold forms to contrast the informality of the suburbs, bringing his designs closer to the principles of postmodernism and the works of architects such as Aldo Rossi, Giorgio Grassi, Robert Venturi, and Denise Scott Brown.

Roca also designed a significant number of housing and university buildings, banks, and other public facilities, as well as city parks and urban planning projects in Argentina and beyond (Roca, 2006; Naselli & Bergallo, 2002).

Roca's work absorbed the lessons of Modernism, characterized by pure forms, simple volumes, and materials used with sincerity, with a personal vision that departs from the style of his father and his own master, Louis Kahn. Throughout his career, with autonomy, he designed consistent solutions that interpreted the program and the place, starting from common principles but always finding a different character, somehow denying the appearance of a single style and instead affirming a continuity in design research that has led him to explore different paths. With a visionary spirit, Roca always viewed the city as a continuous space, with each project contributing a piece to the larger urban mosaic. Through this perspective, his architectural contributions have helped shape Córdoba's urban landscape, reinforcing the idea that architecture and urban design are deeply interwoven with cultural and historical contexts.



04 Exploring Roca's vision and philosophy, from his personal space to his preliminary sketches.
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ROCA'S LEGACY FROM THE CONSTRUCTION OF HIS DIGITAL ARCHIVE

The project is dedicated to preserving, enhancing, and promoting Roca's architectural legacy by creating a virtual museum that incorporates advanced digital tools to document and safeguard his work, especially his sketches and drawings [FIGURE 04]. The development of a digital archive aims to provide a user-friendly, continuously updated platform, making his contributions more accessible while offering innovative tools for deeper analysis and broader dissemination. A key feature of this initiative is its focus on interoperability, ensuring compatibility with other digital platforms, thus fostering data sharing and engaging a wider audience.

Given Roca's significant influence on modern architecture and urban planning, it is crucial to preserve his legacy in formats that go beyond traditional physical archives. As global trends in digitization, exemplified by initiatives such as Europeana and Google Arts & Culture, increasingly shape the conservation of cultural heritage, this project aligns with these trends, ensuring that Roca's work is both preserved and made more accessible. By merging cutting-edge technologies with established archiving methods, this initiative seeks to reshape how Roca's work is studied, understood, and shared.

The preamble of the Seville Principles – International Principles of Virtual Archaeology, drafted by ICOMOS, emphasizes that the London Charter is the most up-to-date

international document on the digitization of cultural heritage (Brusaporci & Trizio, 2013; ICOMOS, 2017). Notably, this document offers a set of principles to guide the development of digitization applications as best practice (Apollonio & Giovannini, 2015; Denard, 2009). Rather than proposing a single implementation methodology, it lays the groundwork for each research group to develop a visualization system with academic rigor, enabling the research results to communicate both the results of the digitization process and the rationale behind it to the end users.

While the first principle of the London Charter emphasizes the importance of drawing up recommendations for each research community, the third and fourth focus on research sources and documentation, thereby addressing the need for the proper selection and cataloguing of sources such that the datasets collected can be effectively translated into information by flowing into a structured database that can be accessed according to well-defined guidelines.

In this context, the Eindhoven-Seoul Declaration, adopted under the auspices of DOCOMOMO (2014), underlines the fundamental importance of documentation in the conservation of cultural heritage. In line with the principles of the London Charter, it emphasizes the need for comprehensive, accurate, and accessible documentation as a foundation pillar of informed and sustainable conservation strategies. Both frameworks advocate structured and academically rigorous systems to ensure that digitization processes effectively support both the



05 Digitization of Roca's work, archiving images, sketches, models, and technical drawings to preserve his legacy. © Authors' elaboration.

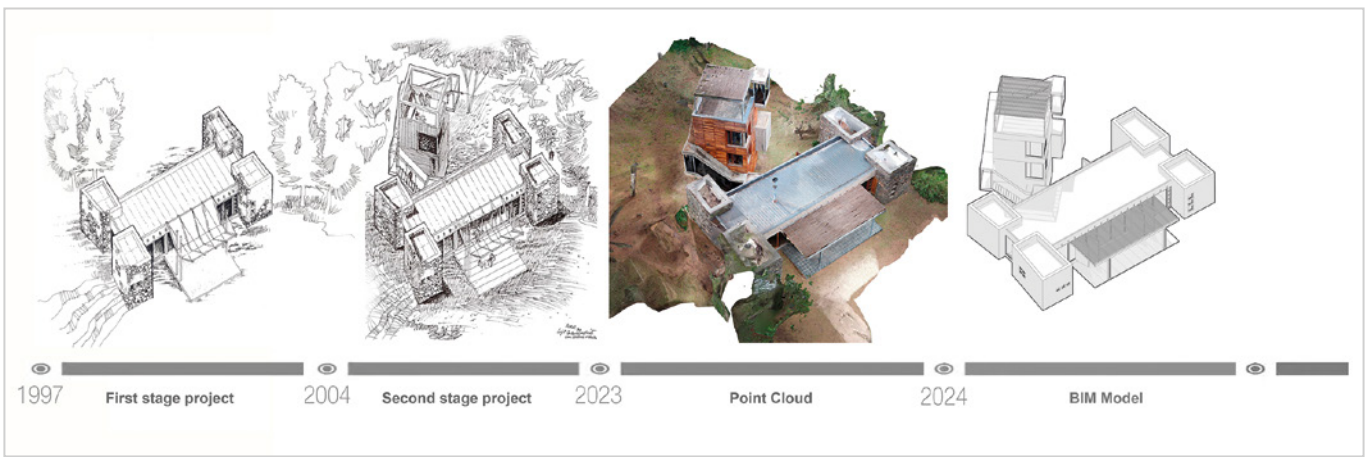
preservation and meaningful communication of cultural heritage. Within this framework, Miguel Ángel Roca's digital archive emerges as an invaluable resource. By preserving the material authenticity of Roca's architectural contributions through meticulous documentation and the integration of digital tools, the archive not only safeguards his legacy but also enriches the understanding of its broader historical and social significance.

In documentation processes, alongside the notion of data, information regarding the criteria that underpin their generation must also be conveyed via metadata and paradata. Metadata is information about a dataset (data about data), i.e., formalized statistical data, required to search for, display, and analyze datasets. They differ from straightforward data and comprise the concept of schema, which represents how the data are mapped. On the other hand, paradata concern formalized data on methodologies, processes, and quality associated with the production and assembly of said statistical data. They also involve estimating a degree of uncertainty. Therefore, the technical networked semantic documentation of 3D models (metadata) in 3D repositories should always be linked to explicit documentation of the creative process behind the virtual representation (Münster et al., 2024). Backing up documentary collecting and cataloguing with this type of information helps ensure the long-term sustainability of the research activities conducted and, above all, prevents the loss of this constantly increasing tangible and intangible cultural heritage.

Several case studies on structured digitization are presented in the literature, ranging from single architectural assets (Maietti et al., 2017) to entire parts of

cultural landscapes recognized as World Heritage Sites (Dell'Amico, 2022; Picchio et al., 2020), for which, following a thorough data collection, a digital simulacrum is envisaged to bind archive data either through ad hoc platforms (Gros et al., 2023; Patankar et al., 2025) or by means of established information systems. The common objective is to increase accessibility to graphic and textual resources that complement mere geometric data by implementing user-friendly interfaces. Hence, the HBIM (Heritage BIM) and HGIS (Heritage GIS) methodologies fit perfectly into the three-dimensional modelling phase of the built and unbuilt heritage while also providing a tool to connect diverse data from once the proper structuring process of the information database has been carried out (Apollonio, 2016; Galeazzo, 2024; Lovell et al., 2023; Murphy et al., 2013). Accordingly, the ongoing experimentation spans the phase of rearranging the documentary sources in Miguel Ángel Roca's extensive archive and structuring a cloud-based digital repository. This repository is being prepared to standardize the networking system of this invaluable documentary heritage within a prototype digital museum, aiming at possible future automation.

The creation of the virtual museum follows an interdisciplinary approach that blends advanced technological tools with expertise from multiple fields. A central aspect of the process is the digitization of physical materials, including project documentation and records, using advanced surveying techniques. Additionally, the integration of Building Information Modeling (BIM) ensures accurate architectural representations, while immersive tools like Virtual Reality (VR) and Augmented Reality (AR) enhance the experience [FIGURE 05]. A key feature of the



06 House in Calamuchita. From ideas to reality, from drawing to modelling. © Authors' elaboration.

project is the development of a dynamic digital catalog that allows for continuous updates and promotes interdisciplinary collaboration. The catalog facilitates efficient information retrieval and enhances user engagement with the extensive collection of Roca's work. The platform will be designed to be intuitive and web-accessible, also incorporating AI-driven assistance, ensuring the digital archive evolves through ongoing contributions from experts in both architecture and technology.

The complexity of the archive stems from the diverse types of materials it houses, which comprise architectural works, theoretical writings, conference texts, and other documents. This richness gives the archive a multi-layered character, but the current focus is on the project archive. Future developments will expand the scope of the archive to include connections between theoretical works, pedagogical contributions, public events, and commissions, further enriching the archive's depth. Given the broad scope of Roca's work, spanning both realized and unrealized public and private projects, it is difficult to categorize his style into a singular form. This complexity reflects the multifaceted nature of his contributions to architecture and highlights his versatility as a designer.

This initiative aims to deliver transformative outcomes by strategically leveraging advanced technologies, prioritizing accessibility, and emphasizing sustainability. At its heart is the virtual museum, an immersive web platform showcasing Roca's work while integrating cutting-edge technologies such as Digital Twin (DT), BIM, VR, and AR to provide an engaging and educational experience [FIGURE 06]. Virtual reconstructions of selected projects, including unrealized designs, will offer a comprehensive analysis and visualization of his architectural contributions.

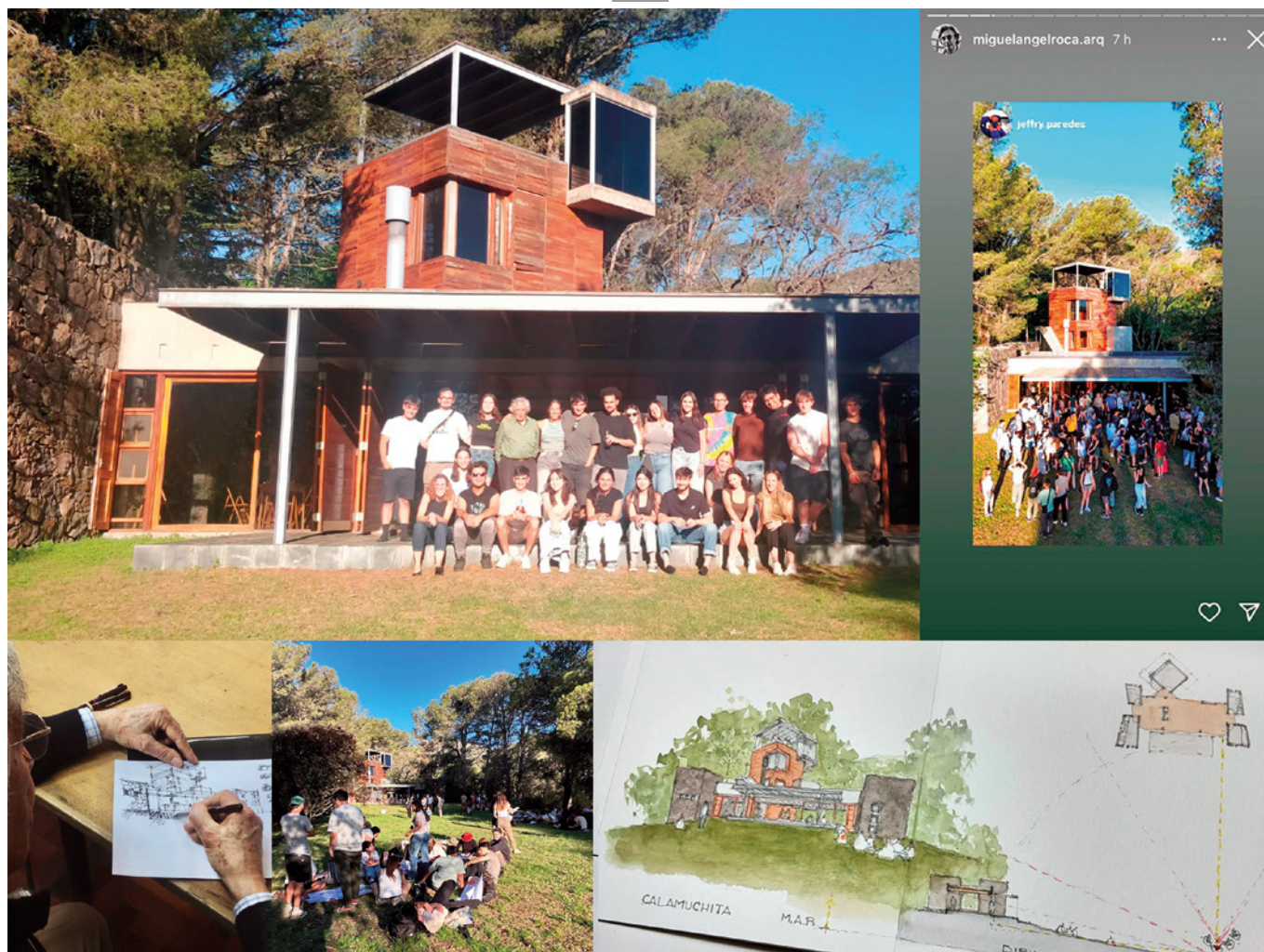
To this end, the research activities involve students and researchers from Italian universities and the National University of Córdoba to develop synergic collaborative strategies that benefit from the international exchange of knowledge for the creation of a true digital ecosystem (De Luca, 2024; Parrinello et al., 2023) for the continuous updating and dissemination of Roca's digital archive.

The dynamic digital catalog, central to the project, will evolve through ongoing updates, incorporating a diverse range of files, images, 3D models, and metadata to facilitate efficient interdisciplinary collaboration and resource access. Sustainability is a cornerstone of the project, with continuous updates ensuring the catalog's relevance and longevity. Additionally, the project adheres to data interoperability standards, enabling seamless integration with other digital platforms and establishing the virtual museum as a central hub for interdisciplinary exchange.

The creation of the virtual museum dedicated to Roca marks a significant improvement in the preservation and dissemination of modern architecture. By leveraging digital technologies, this project not only safeguards original materials but also enhances the accessibility and relevance of Roca's work, enriching both academic research and public engagement. The initiative highlights the importance of continually updating the catalog, thereby effectively bridging the gap between expert scholarship and broader public interest. It also serves as a pioneering model for future architectural digitization efforts. This platform enables students and researchers to explore Roca's design philosophy, architectural process, and creative vision from anywhere in the world. Through virtual tours and in-depth analysis of his work, the project fosters a deeper connection with his architectural legacy, revitalizing his teachings and ensuring their lasting significance for future generations [FIGURE 07].

CONCLUSIONS

As we have seen, modernist architecture faces a range of vulnerabilities, primarily driven by urbanization, neglect, shifting cultural values, and a lack of legal protection. In South America, as cities like Córdoba continue to expand, many modernist buildings are at risk of demolition or alteration to accommodate new developments, fueled by urban growth and gentrification. Additionally, the innovative—sometimes untested—materials used in these structures often result in inadequate maintenance, leading to physical deterioration over time. Furthermore, as societal tastes evolve,



07 House in Calamuchita with students. Manifesto of Roca's architectural philosophy and vision. © Authors' elaboration.

modernist designs, once emblematic of progress, may now be seen as outdated or irrelevant, contributing to their neglect or destruction. Finally, without robust legal frameworks to safeguard them, these buildings remain vulnerable to the pressures of redevelopment, which often prioritize economic and urban growth over cultural preservation.

The primary focus of this study is the documentation of architecture, emphasizing the critical role of digitization in creating multi-scale and multi-resolution models that enable detailed analysis and effective conservation strategies. Digitizing architectural works preserves materials that would otherwise be at risk of deterioration, especially considering the diverse forms and materials that may decay over time. In the case of public works, this process provides administrators with essential tools to understand the structures and intervene in future maintenance and preservation efforts. The digitization of Roca's architectural archive includes the creation of virtual models that not only document but also offer great potential in terms of management and use. By integrating advanced digital platforms, such as GIS and BIM for heritage, this project creates a comprehensive, dynamic system that supports both immediate and long-term conservation goals.

The integration of these digital tools enables a complex system that unites various digital information platforms,

creating a cohesive framework for ongoing management. These technologies facilitate detailed documentation, modeling, and analysis, enhancing accessibility, improving resource management, and fostering interdisciplinary collaboration. By incorporating these tools, the study addresses the technical, social, and economic challenges inherent in heritage conservation, while showcasing the potential of digital solutions to manage and protect modernist heritage.

The creation of detailed digital archives offers a sustainable framework for managing modernist architecture, facilitating its adaptation to contemporary needs while preserving its historical integrity. The interdisciplinary and digital methodologies advanced in this research aim to set new standards for the sustainable management of architectural heritage, promoting a balance between conservation and adaptation in response to evolving societal demands. Roca's architecture in Córdoba, deeply intertwined with the city's transformation, blends modernist and postmodernist influences with local cultural contexts. His buildings are not merely aesthetic expressions; they reflect the socio-political dynamics of their time, making them integral to the city's identity.

In Córdoba, a city that balances colonial and modern architectural elements, Roca's designs represent an effort to bridge the past with a progressive vision for the future.

However, the modernity that defines his work also exposes his buildings to the pressures of urbanization and shifting cultural values. As the city continues to grow and evolve, the survival of Roca's buildings—and architecture more broadly—becomes increasingly uncertain. Ensuring their preservation requires a comprehensive and multifaceted approach that includes legal protection, cultural recognition, and a renewed appreciation of their historical and cultural significance. Only through such an approach can these architectural icons be safeguarded for future generations.

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REFERENCES

- AA.VV. (2005). Miguel Ángel Roca. Autor de arquitectura [Miguel Ángel Roca. Architect]. Scalae. Documentos periódicos de arquitectura, 4.
- APOLLONIO, F. I. (2016). Classification Schemes for Visualization of Uncertainty in Digital Hypothetical Reconstruction. In Münster, S., Pfarr-Harfst, M., Kuroczyński, P., & Ioannides, M. (Eds.), 3D Research Challenges in Cultural Heritage II. How to Manage Data and Knowledge Related to Interpretative Digital 3D Reconstructions of Cultural Heritage (pp. 173-197). Springer Nature. https://doi.org/10.1007/978-3-319-47647-6_9
- APOLLONIO, F. I., & Giovannini, E. C. (2015). A paradata documentation methodology for the uncertainty visualization in digital reconstruction of CH artifacts. *SciRes-It. Scientific REsearch and Information Technology*, 1–24. <https://doi.org/10.2423/i22394303v5n1p1>
- BRUSAPORCI, S., & Trizio, I. (2013). La "Carta di Londra" e il Patrimonio Architettonico: riflessioni circa una possibile implementazione [The 'London Charter' and Architectural Heritage: Considerations about potential implementation]. *SCIRES-IT. Scientific REsearch and Information Technology Ricerca Scientifica e Tecnologie Dell'Informazione*, 2, pp. 55-68. <https://doi.org/10.2423/i22394303v3n2p55>
- DE LUCA, L. (2024). A digital ecosystem for the multidisciplinary study of Notre-Dame de Paris. *Journal of Cultural Heritage*, 65, 206-209. <https://doi.org/10.1016/j.culher.2023.09.011>
- DELL'AMICO, A. (2022). Memoria e modello digitale. La costruzione di un sistema informativo per la salvaguardia del patrimonio architettonico diffuso dell'Upper Kama [Memory and digital models. The construction of an information system for the preservation of Upper Kama's widespread architectural heritage]. *Restauro Archeologico*, 30(1), 32-53. <https://doi.org/10.36253/rar-12164>
- DENARD, H. (2009). The London Charter. For the Computer-Based Visualization of Cultural Heritage, Version 2.1. <https://londoncharter.org/>
- DOCOMOMO INTERNATIONAL (2014). Eindhoven-Seoul Statement. <https://docomomo.com/organization/>
- FISZMAN, N. S. (2007). Miguel Ángel Roca: Casa Calamuchita. 1:100 [Miguel Ángel Roca: House in Calamuchita. 1:100], 10. 1:100 Ediciones, Buenos Aires.
- GAGGIANO, E. (1976). Miguel Ángel Roca, architecte en Argentine [Miguel Ángel Roca, an architect in Argentina]. *L'Architecture d'aujourd'hui*, 183, pp. 81-91.
- GALEAZZO, L. (2024). Risemantizzare paesaggi perduti: un database per l'arcipelago veneziano [Rediscovering Lost Landscapes: A Database for the Venetian Archipelago]. *TRIBELON Journal of Drawing and Representation of Architecture, Landscape and Environment*, 1(2), pp. 64-75. <https://doi.org/10.36253/tribelon-2943>
- GAGGIANO, E. (1994). L'architettura è una storia [Architecture is a story]. *L'Arca*, 81, pp. 4-19.
- GLUSBERG, J. (1982). Argentina Architecture Enriches a Variety of Civic Nodes and Spaces in Córdoba. *AIA Journal*, 08, pp. 110-115.
- GROS, A., Guillem, A., De Luca, L., Baillieux, É., Duvocelle, B., Malavergne, O., Leroux, L., & Zimmer, T. (2023). Faceting the post-disaster built heritage reconstruction process within the digital twin framework for Notre-Dame de Paris. *Scientific Reports*, 13(1). <https://doi.org/10.1038/s41598-023-32504-9>
- LOVELL, L. J., Davies, R. J., & Hunt, D. V. L. (2023). The Application of Historic Building Information Modelling (HBIM) to Cultural Heritage: A Review. *Heritage*, 6(10), pp. 6691-6717. <https://doi.org/10.3390/heritage6100350>
- MAIETTI, F., Di Giulio, R., Balzani, M., Piaia, E., Medici, M., & Ferrari, F. (2017). Digital Memory and Integrated Data Capturing: Innovations for an Inclusive Cultural Heritage in Europe Through 3D Semantic Modelling. In *Mixed Reality and Gamification for Cultural Heritage* (pp. 225-244). Springer International Publishing. https://doi.org/10.1007/978-3-319-49607-8_8
- MÜNSTER, S., Apollonio, F. I., Bluemel, I., Fallavollita, F., Foschi, R., Grellert, M., Ioannides, M., Jahn, P. H., Kurdiovsky, R., Kuroczyński, P., Lutteroth, J.-E., Messemer, H., & Schelbert, G. (2024). Documentation. In *Handbook of Digital 3D Reconstruction of Historical Architecture* (pp. 165-187). Springer. https://doi.org/10.1007/978-3-031-43363-4_8
- MURPHY, M., McGovern, E., & Pavia, S. (2013). Historic Building Information Modelling - Adding intelligence to laser and image-based surveys of European classical architecture. *ISPRS Journal of Photogrammetry and Remote Sensing*, 76, pp. 89-102. <https://doi.org/10.1016/j.isprsjprs.2012.11.006>
- NASELLI, C., & Bergallo, J. M. (2002). Miguel Ángel Roca. University works 1993-2002. *L'Arca Edizioni*, Bergamo.
- PARRINELLO, S., Sanseverino, A., & Fu, H. (2023). HBIM modelling for the architectural valorisation via a maintenance digital ECO-System. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLVIII-M-2–2023, pp. 1157-1164. <https://doi.org/10.5194/isprs-archives-xlviim-2-2023-1157-2023>
- PATANKAR, Y., Tennenini, C., Bischof, R., Khatri, I., Maia Avelino, R., Yang, W., Mahamaliyev, N., Scotto, F., Mitterberger, D., Bickel, B., Girardet, F., Amsler, C., Bomou, B., & J. Flatt, R. (2025). Heritage ++, a Spatial Computing approach to Heritage Conservation. *RILEM Technical Letters*, 9, pp. 50-60. <https://doi.org/10.21809/rilemtechlett.2024.202>
- PICCHIO, F., De Marco, R., Dell'amico, A., Doria, E., Galasso, F., La Placa, S., Miceli, A., & Parrinello, S. (2020). Urban analysis and modelling procedures for the management of historic centres. Bethlehem, Solikamsk, Kotor and Santo Domingo. *Paesaggio Urbano*, 2, pp. 103-115.

- ICOMOS. (2017). Principles of Seville: International principles of virtual archaeology. Ratified by the 19th ICOMOS General Assembly in New Delhi, December 2017. Retrieved from <http://sevilleprinciples.com/>
- ROCA, M. A., Bohigas, O., & Glusberg, J. (1981). Miguel Ángel Roca. Academy Press Editions, London.
- ROCA, M. A. (1984). Louis Kahn, arquetipos y modernidad [Louis Kahn, archetypes and modernity]. Editorial Summa Books, Buenos Aires.
- ROCA, M. A. (1985). Lugares urbanos y estrategias [Urban spaces and strategies]. FAUD-UNC, Córdoba.
- ROCA, M. A. (1988). Habitar, construir, pensar. Tipología, tecnología, ideología [Building, Dwelling, Thinking. Typology, technology, ideology]. Eudeba, Buenos Aires.
- ROCA, M. A. (1989). Miguel Ángel Roca: il progetto Córdoba [Miguel Ángel Roca: the Córdoba project]. Domus, 701, pp. 6-7.
- ROCA, M. A., Broadbent, G., Correa, C., De Carlo, G., & Glusberg, G. (1994). Miguel Ángel Roca. Architectural Monograph, 36. Academy Editions, London.
- ROCA, M. A. (1995). The Architecture of Latinamerica. Academy Editions, London.
- ROCA, M. A., Ciriani, H., Ryckwert, J., Glusberg, G., & Segre, R. (2000). Miguel Ángel Roca. 1990-2000. Editorial Summa Books, Buenos Aires.
- ROCA, M. A. (2005). La Arquitectura del siglo XX. Una antología personal [20th Century Architecture. A personal anthology]. Editorial Summa Books, Buenos Aires.
- ROCA, M. A. (2006). Habitar colectivo, habitar público, habitar privado: de la arquitectura y la ciudad [Mass housing, public housing, private housing: about architecture and city]. Revista de Humanidades: Tecnológico de Monterrey, 20, pp. 217-228. Instituto Tecnológico y de Estudios Superiores de Monterrey, Monterrey.
- ROCA, M. A. (2025). Miguel Ángel Roca. Retrieved January 7, 2025, from <https://www.miguelangelroca.com.ar/>
- ROCA, M. A., & Sardin, O. (2025). Taller de Arquitectura Roca Sardin UBA [Design studio by Roca Sardin UBA]. Retrieved January 7, 2025, from <https://www.tallerocasardin.com/>
- RÚA, B. d. I., Civalero, R., Rodríguez de Ortega, A. M., Bettoli, M. I., Roca, M. A., & Berta, R. (2016). Arquitecto Jaime Roca: Reflejo de tradición y ruptura en su obra y su tiempo [Architect Jaime Roca: Tradition and innovation in his work and in his time]. Córdoba, Miguel Ángel Roca.
- TAYLOR, B. B. (1992). Miguel Ángel Roca. Mimar Concept Media Ltd., London.
- WAGNER, W. F. (1984). A city to be seen and read. Architectural Record, 07, pp. 114-121.
- WAISMAN, M. (1973). Riflessioni sull'architettura in Argentina [Considerations about the architecture in Argentina]. Domus, 525, pp. 1-8.
- WAISMAN, M. (1982). Córdoba: costruire nella città [Córdoba: building within the city], Domus, 627, pp. 10-17.
- WAISMAN, M. (1987). Sturdy, Spired Shopping Arcade Links Landmarks. AIA Journal, 09, pp. 70-71.

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