



## IHERITAGE

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# A CO-PUBLICATION BY THE AMERICAN UNIVERSITY OF TECHNOLOGY (AUT), ITRIBE® & DR. ROLA SAADI



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# THE ROMAN ARCHEOLOGICAL LAYER OF BYBLOS WITHIN THE IHERITAGE PERSPECTIVE

## DR. ROLA A. SAADI

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## Researcher Profile: **Dr. Rola A. Saadi**



Architect and Curator of monuments and historical sites.

Researcher in archeology and architectural history. In 1999, she earned a Specialized Higher Studies Diploma (DESS) in Restoration and conservation of monuments and historical sites from the Lebanese University Restoration and Conservation Center, Tripoli, Lebanon.

Since 2017, she has been preparing a doctoral thesis in archeology at the University of Paris 1, Panthéon-Sorbonne, France, which will be defended in November 2023.

In 2015, she earned a Master 2 Research (M2R) in archeology and history of ancient civilizations from the University of Lumière-Lyon 2, Lyon, France.

## Visuals produced by **Dr. Evan Fakhoury**



In 2016, Dr. Fakhoury graduated from the University of Leeds (UK) with a PhD in Mechanical Engineering, specializing in Human-Machine Interaction. He then immediately joined the Lebanese American University as a tenure-track Assistant Professor of Mechanical Engineering, a title he holds to date.

In 2019, Dr. Fakhoury shifted his focus from hardware to software, mainly virtual and augmented reality technologies. Currently, his work includes leading VR/AR projects, teaching VR/AR classes, creating novel learning methodologies, and developing immersive content for higher education. He also developed digital marketing strategies through immersive content for industries such as fashion, product design, and training.

In 2021, Dr. Fakhoury founded ITRIBE®, a boutique training studio in the heart of Beirut. 'One Tribe' is a science-based group training experience (Instagram: @Itribelb, website: [linktr.ee/Itribelb](https://linktr.ee/Itribelb)). Due to its innovative structure, lean business model, and exciting profit margins, ITRIBE® is soon expanding locally as well as to other cities in the Middle East.

In 2022, armed with his expertise and accumulated resources gained in VR/AR product development over the years, Dr. Fakhoury founded 'Tomorrow Today' (website: <https://tomorrowtodayagency.carrd.co/>), a VR/AR digital consulting agency specializing in creating immersive products for a range of clients from architecture, to fashion design, to cultural heritage and education.

In late 2023, Dr. Fakhoury assumed the role of Assistant Director of the LAU Industrial Hub, where he manages all operations, oversees projects, and acts as the link between the Hub and the stakeholders.

# Introduction

A co-publication by American University of Technology and Dr Rola A. Saadi with the contribution of Dr Evan Fakhoury.

A number of historical sites have received new interpretations and presentation methods in the past few years thanks to AR/VR techniques. The opportunity to use these new tools in Byblos, one of the oldest cities in the world and a UNESCO world heritage site, was provided by the iHeritage project, which has recently been running in many Mediterranean cities in order to promote new experiences for presenting and appreciating these sites of cultural value. The Roman era, one of the most significant in Byblos history, is among the many eras that have been revived, and will be soon unveiled to the public.

## Byblos: A Brief History

Located some forty kilometers north of Beirut, on a rocky promontory overlooking the Mediterranean Sea, Byblos—"Jbeil" in Arabic—is one of the oldest cities in the world, and is associated with the history and diffusion of the Phoenician alphabet. Archaeological excavations have shown that it has been inhabited continuously from the end of the sixth millennium, when a small fishermen community first settled there. The small village expanded over time. It became a bustling economic hub during the third millennium, trading mostly with Egypt, Mesopotamia, and the Aegean

region. However, the town didn't really take off until the end of the second millennium, thanks to marine trade centered on the export of cedar wood.

In the course of its long history, Byblos was affected, like many other Phoenician cities, by successive invasions from different civilizations. Around 2200 BC, it was destroyed by the Amorites. But shortly afterwards, it regained its autonomy and economic prosperity. It remained an important city until the invasion of the Sea Peoples between the 13th and 12th centuries BC, after which it lost its influence to Tyre and Sidon. It was later conquered by the Persians, like the rest of the region, and then around 332 BC by Alexander the Great. From this date onwards, the city adopted Hellenistic culture and traditions, abandoning its Semitic name of Gubal. It was given a new name, "Byblos", derived from the Greek word for book or papyrus, as these were imported to Greece through the port of the city.

The Greek occupation came to an end as the Roman legions swept into Byblos around 64 BC. Under their gaze, Byblos underwent an exceptional architectural revival befitting its newfound status as the "Ieras Byblou," or "Holy City" and matching the new ideals of architectural perfection and standardization. The prestigious appearance of Roman Byblos did not survive the Byzantine era, during which a disastrous earthquake struck the city in 551 AD, affecting both its monuments and its population.



**Figure 1:** The archaeological remains around the nymphaeum as they appear today on site.



**Figure 2:** The same archaeological area around the nymphaeum reconstructed in VR techniques.

In 636 A.D., Byblos came under the control of the Arabs, with whom new cultural requirements began to affect the city's urban landscape. But it wasn't until the arrival of the Crusaders in 1104 that Byblos' classical appearance disappeared for good, giving way to other cultural norms that would mark its development for centuries to come. The city shrank in size and was surrounded by new defensive walls dominated by a castle, the ruins of which are still visible within the archaeological site.

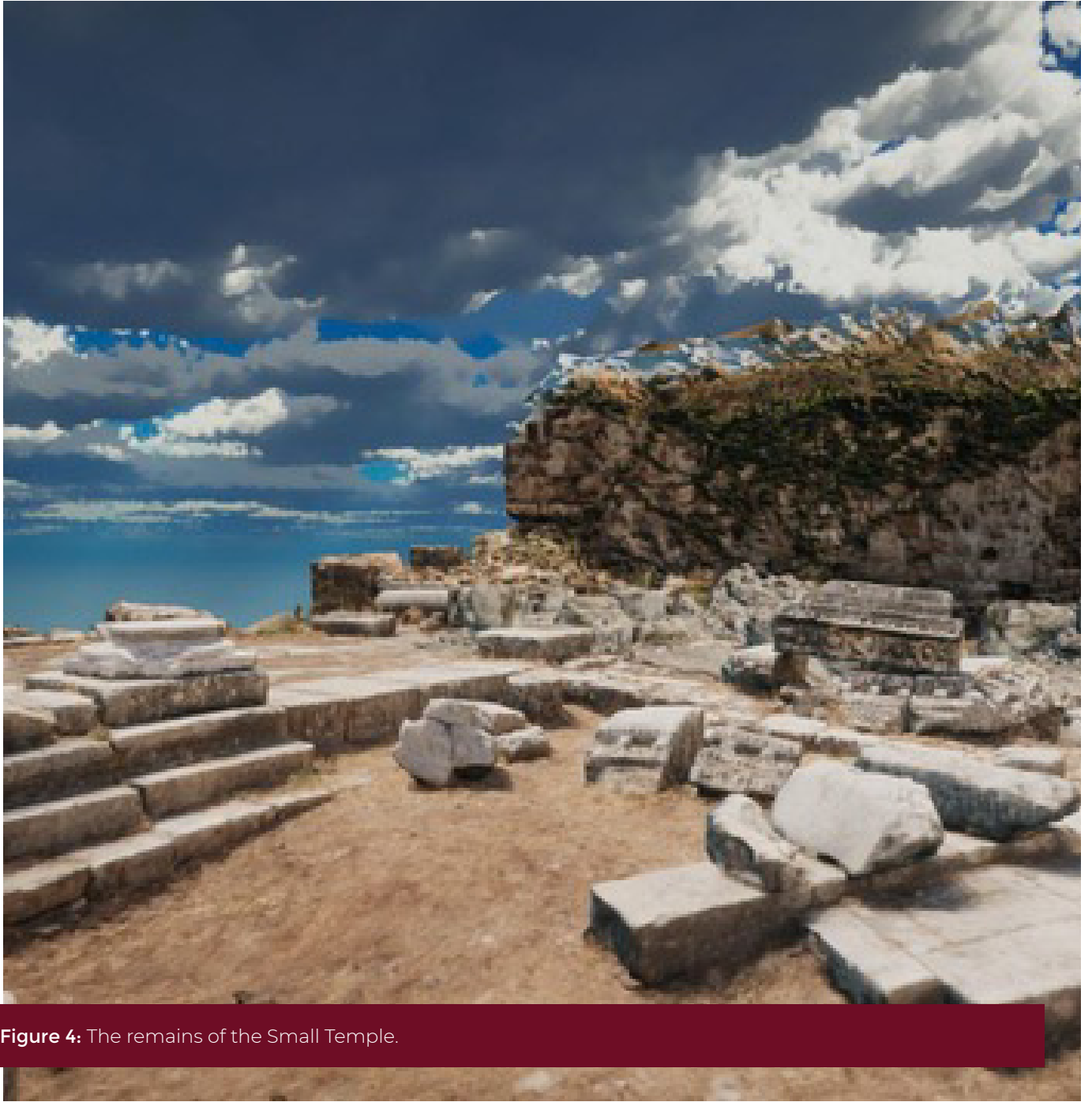
After the departure of the Crusaders, the city was occupied by the Mamluks and then the Ottomans, under whom restoration works were undertaken,

along with the construction of new monuments and souks extramuros.

The transformations that have shaped the face of this thousand-year-old city have continued to evolve over the years. And with its historical remains completely buried under the rubble, ancient Byblos fell completely into oblivion. It was only at the beginning of the 20th century that the city regained its importance, with the various archaeological missions working on the site and the rich discoveries tracing its history. In 1984, it was listed as a UNESCO World Heritage Site.



**Figure 3:** The ruins of the nymphaeum.



**Figure 4:** The remains of the Small Temple.

## The iHERITAGE Project in Byblos

The iHERITAGE project, launched at the end of 2020 in the Mediterranean region, encouraged the implementation of new strategies using augmented reality (AR), virtual reality (VR) and mixed reality (MR) as the latest ICT technologies available for the enhancement of the level of understanding and conservation of UNESCO heritage sites. Although the project was only

launched in Byblos, Lebanon, in the spring-summer of 2023 under the patronage of the General Directorate of Antiquity (DGA) and the Ministry of Culture, Lebanon, the experts have demonstrated a great sense of responsibility to achieve, within a challenging timeframe, virtual experiences that meet the aspirations of the city's visitors.

# Methodology

Implementing the terms of this project to highlight the Roman era in Byblos within a four-month timeframe was seen as a major scientific challenge. Until now, little research had been carried out on this historic layer. The prehistoric age, which gave Byblos its importance as one of the oldest inhabited cities in the world, has attracted the full attention of specialists for decades. However, in order to carry out the project in a systematic and scientific manner, a compatible study framework was adopted, enabling the implementation of a practical and integrated approach that respects the importance of the city inscribed on the World Heritage List.

The framework encompasses a quick assessment of the archaeological site and its components dating back to Roman times, in order to specify areas of interest for virtual experiences.

A consultation of all available documentation in the DGA archives, concerning early and recent excavations.

In addition, numerous surveys of the various Roman remains identified on the site were undertaken,

mainly the sections of colonnaded streets and their components, as well as the few remaining monuments that once adorned the city.

Furthermore, the lack of sufficient archaeological data and the limited information provided by the ruins prompted us to undertake comparative studies on local, and well-documented regional sites that share similar topographical and architectural conditions, in order to fill in the gaps concerning the urban configuration of Byblos in Roman times.

This preliminary work enabled us to draw some conclusions and, subsequently, several reconstructions were possible: a hypothetical reconstruction of the city plan was carried out, as well as two AR/VR experiments along specific stretches of the main colonnaded street.

However, it should be noted that our intervention does not claim to find all the answers concerning the architectural and historical aspect of the Roman Byblos but it nevertheless tries to clarify certain points in the light of the available data.



**Figure 5:** Reconstruction of the small temple and the nymphaeum.

# The Roman City of Byblos

The Roman city of Byblos, with its different districts, streets and monuments, is still largely unknown. The documentation available on this period and the ruins revealed so far are not sufficient to draw a complete picture of its history and urban organization at that time. The fact that Byblos is one of the oldest continuously inhabited cities in the world, with a history spanning over 9000 years, means that the city has witnessed a succession of various civilizations, each

built on the ruins of a previous one. We can therefore imagine the difficulties encountered by the archaeological missions that worked on site in the early 20th century. Knowing that their main objective was to uncover the prehistoric levels of Byblos, these missions ended up scarifying parts of the Roman stratum and its monuments to achieve their ends. As members of the iHERITAGE project team, our mission was to shed light on this marginalized era, in line with the methodology already mentioned.



**Figure 6:** The nymphaeum reconstructed.



# Highlighting Areas of Interest

Several methods to interpret the site have been agreed on. AR/VR reconstructions were planned for some specific points, in parallel with a 3d reconstruction of the city.

## The 3d Reconstruction

This reconstruction shows a monumental city that underwent a remarkable architectural revival and regularization under the Romans. With the addition of a new network of orthogonal streets, its urban fabric underwent unprecedented expansion to the north and northeast sides. Porticos, housing the commercial activities of the time and promoting conviviality all year round, were rebuilt along the main avenues. These arteries, which linked the various districts of Byblos, led the faithful to the sacred hill or the acropolis, where stood proudly the temple dedicated to the Lady of Byblos, the Colossi temple and the great temple of Adonis, for whom seasonal festivals celebrating his death and resurrection were organized.

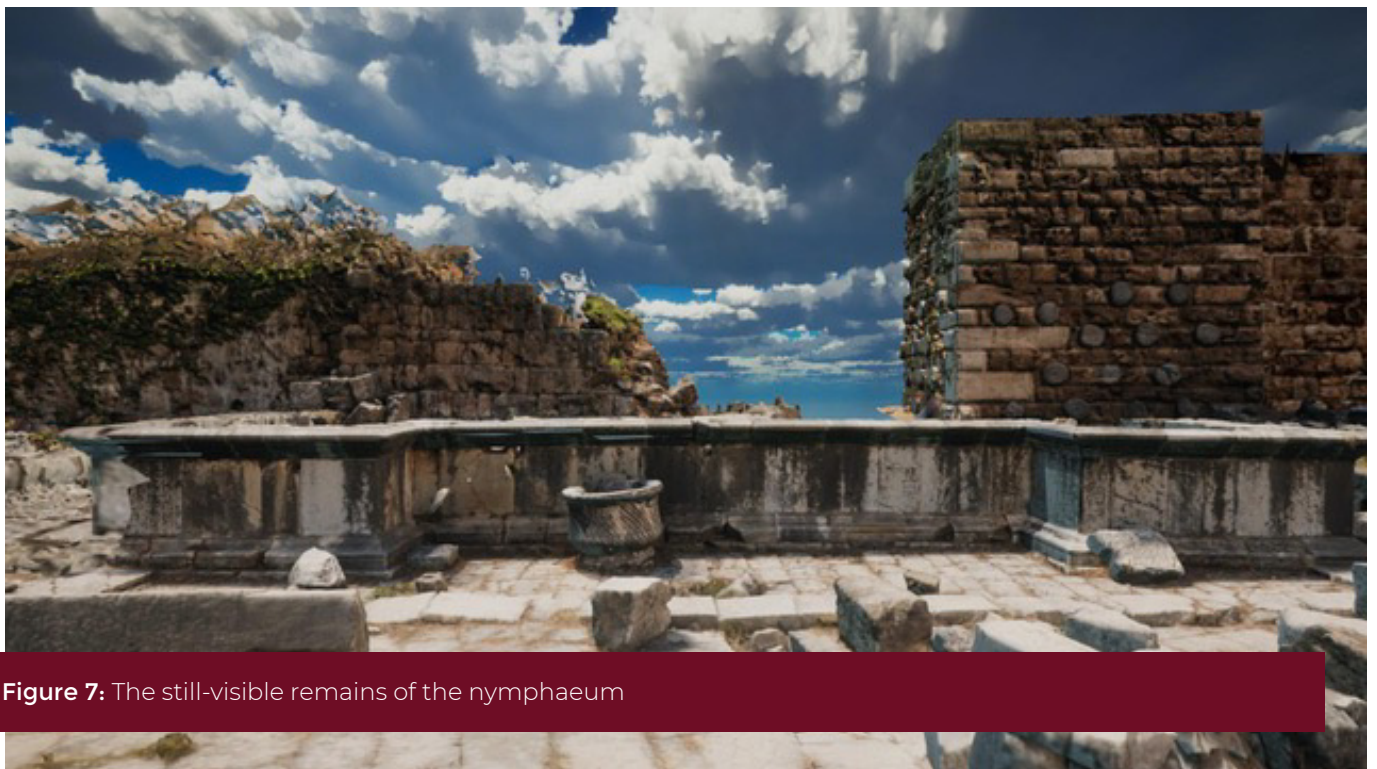
In the 3d, visitors can view the city's harbor, residential neighborhoods, and public monuments that once adorned its various areas. Some of these monuments have withstood the test of time, notably the monumental fountain or the nymphaeum, the triangular square, the small temple, and the theater that has been restored to its original location on the sacred hill.

## The VR Experiences

One of the significant areas dating back to Roman times is that near the nymphaeum, at the foot of the Crusader castle. Although an integral part of the archaeological site as a whole, the destruction and erosion of the archaeological features in this area, along with the lack of quality interpretation which reduced the understanding of what they once represented, were the most obvious problems facing the ruins. This area was unwittingly bypassed, or rarely explored, by visitors. The VR experience, which has brought the remains to life, was an opportunity to shed light on this long-forgotten part of the roman city of Byblos.

In the VR experience, visitors can follow their roman guide Tatianus, who will accompany them on this virtual tour, providing historical and cultural information on the site's points of interest which mainly consists of:

A main street with porticos housing the shops that bear witness to the area's commercial activity. Under the shaded walkways, passers-by strolled all year round, in search of goods or for pleasure. It was the ideal public space for encounters and various forms of conviviality in the Roman Near East. During the religious celebrations held in Byblos in honor of the



**Figure 7:** The still-visible remains of the nymphaeum

god Adonis, this street was a festive avenue, where the faithful would gather on the steps of the porticoes to watch the religious processions as they made their way to the acropolis.

A nymphaeum dating back to the late 2nd century A.D. This monumental fountain backs onto the retaining wall of the acropolis and borders a small public square. It was the ideal place for the faithful to stop and freshen up before heading off to the city's main temples erected on the acropolis. With its richly decorated facade of niches and statues, and its water-retaining basins, the nymphaeum was the ideal setting for a cascading water show.

A small temple with four Corinthian columns whose elevation opens directly onto the square. The location of this monument was well thought out to create a welcoming space before reaching the city's sacred hill.

Another area of interest was brought back to life in AR/VR techniques within the iHeritage project. This contributed in generating liveliness and dynamism to the colonnaded street at the entrance of the modern city, which is one of the few still-standing ruins of the roman period. Artifacts like chariots on the road and goods under the porticoes were added to the historical setting, allowing the visitor to experience the spirit of the place while increasing the understanding of the ruins.

One can imagine life as it was then in Byblos thanks to the ENI CBC MED initiative and to the local stakeholders, namely the Chamber of Commerce and Industry in Beirut-CCIB and the Directorate General of Antiquities-DGA which offered all means possible for the realization of this project. AR/VR companies that worked on this project are to be especially thanked because of the very tight schedules they had to work along and the pressure to deliver work in record time.

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