

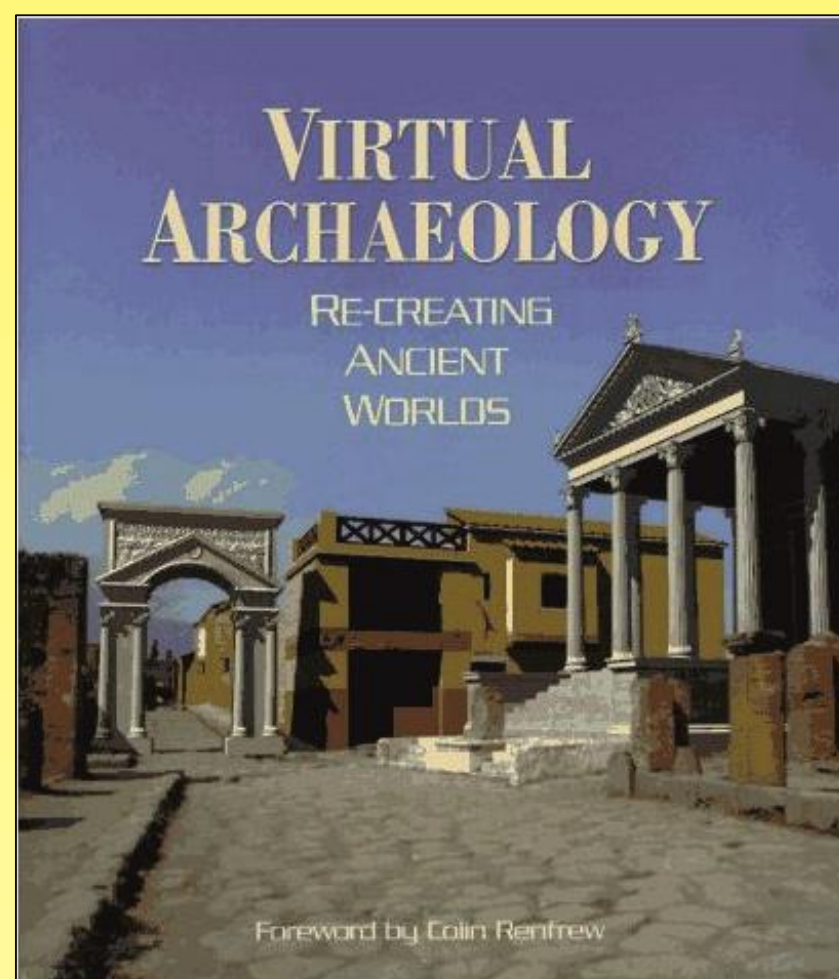
# The {LEAP} Project

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## 1. What is the problem?

**Virtual Archaeology (VA)** is nowadays a well-established knowledge area. Several publications and an international charter, The Sevilla Principles, define its goals and guidelines. Yet, most 3D models do not comply with several **principles**, and in spite of VR's capacities, they typically display hyper-realistic reconstructions of architectural environments, the usefulness of which is seldom assessed.



M. Forte and A. Siliotti (Ed.), Thames & Hudson, 1997.

## 2. Convergence story

The HCI concept of **Cultural Presence** defines a culturally meaningful context in/with which users can communicate and cooperate [RCG\*02]. Both from the Presence and the CH fields, examples have been used that show the usefulness of Cultural Presence for understanding other cultures [Jon05] [Dev07].

This has opened the door for a potential **convergence** between Presence and VA, in which the former brings its well established methodologies, and the later specific goals and meaningfulness.

## 3. The {LEAP} Project

In this context arises {LEAP}. "LEarning of Archaeology through Presence" is a recently started EU funded project aimed at researching, implementing and evaluating an interdisciplinary theoretical and methodological **framework** for VA.

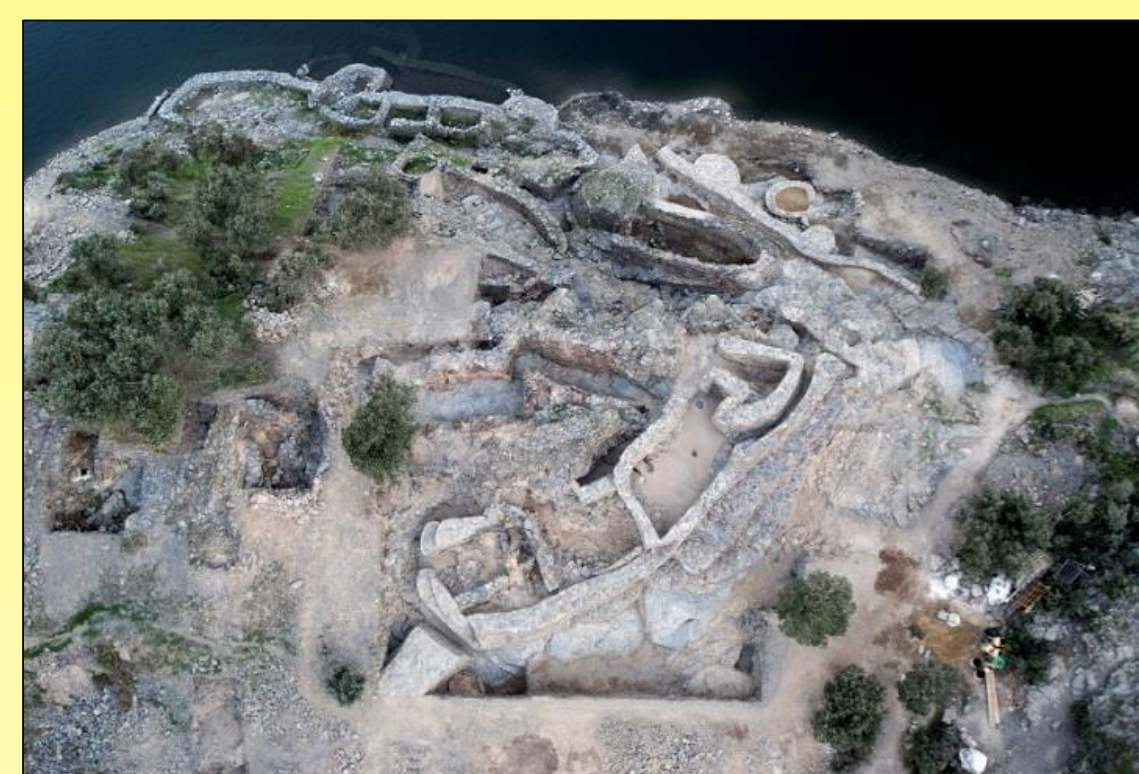


The eXperience Induction Machine (XIM) at SPECS

{LEAP} will be developed at the Pompeu Fabra University of Barcelona. The **MIDARQ** Group (Dept. of Humanities) studies domestic technologies and material culture. The **SPECS** Group (Dept. of ICT), studies and synthesizes human perception, emotion, and cognition, with the help of computational systems.

The overall strategy of the {LEAP} project comprises three phases:

1. To import into the archaeological field the concept of Cultural Presence and adapt it to its new context of development (definition, goals, factors, methodology).
2. To build at the immersive mixed-reality space (XIM) of the SPECS Group **different 3D models** of the Bronze Age site of Peñalosa (Spain), using 3DS Max, Unity 3D and iqr.
3. To design a specific **evaluation** methodology for Cultural Presence, and compare (video-recording, physical response tracking, questionnaires, learning pre/post-tests) the impact of the different virtual reconstructions on a selected group of users.



The Bronze Age site of Peñalosa (Spain)

## 4. Adjusting the intersection

{LEAP} defines Cultural Presence as a **means** for and a **measure** of the suitability of a virtual environment for learning. The highest the feeling of "being then and there", the highest the emotional and learning impact.

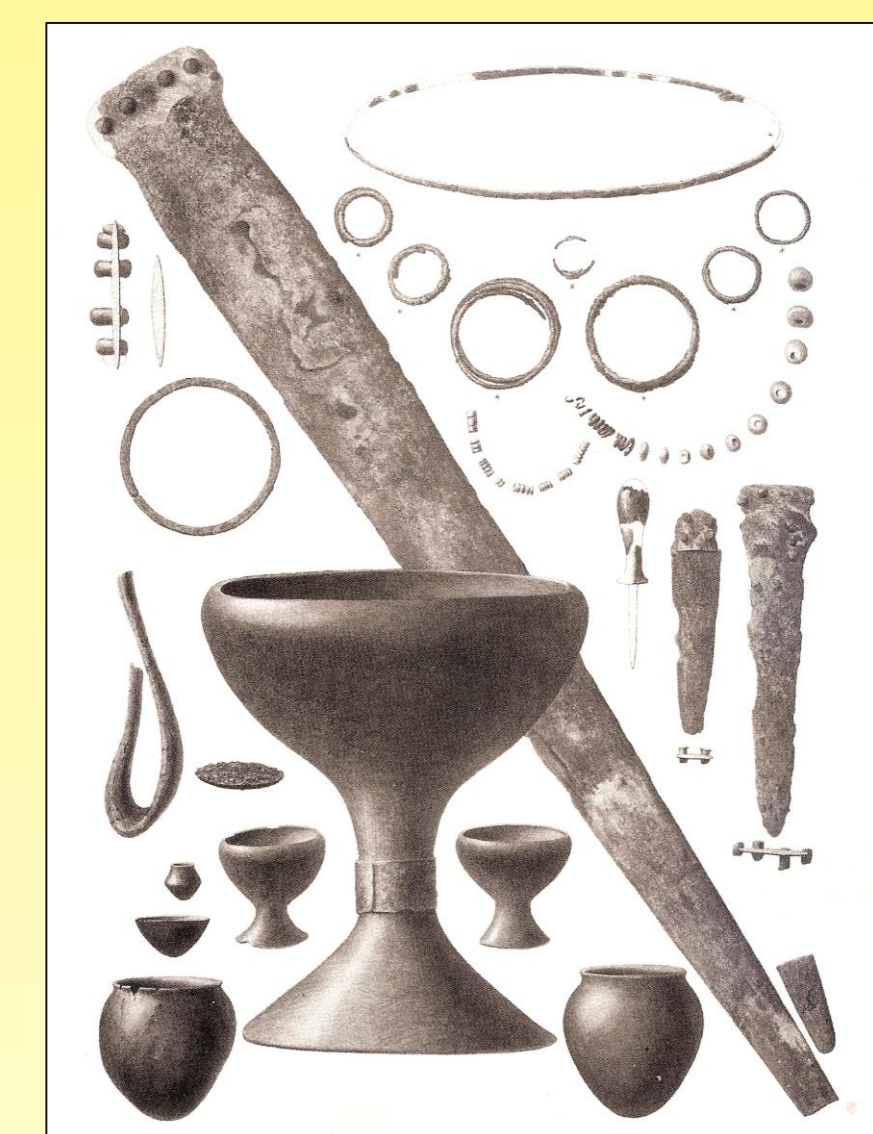
Two issues need to be considered:

1. **Ethnological issue.** Any description of another culture is necessarily biased by the observer's own cultural context [Eva65]. Even more so with interpretations of partially preserved archaeological sources. The inclusion of non-photorealistic rendering, paradata, or alternative reconstructions may comply with the Sevilla Charter, but it is not clear if this may undermine the feeling of (Cultural) Presence [PE08]. Thus, we need to verify which the determining **factors** for Cultural Presence are. Since the model cannot be compared against the real world, it should be equated with **verisimilitude** (who defines it?), and include **satisfaction** and engagement [PC12].
2. **Learning** is a complex concept. It comprises different kinds of knowledge, attitudes, and skills, which involve different (cognitive) processes. Therefore, measuring learning in virtual reconstructions is more than just measuring factual knowledge [PE08].

It depends on the **approach** adopted, which in VA has recently diversified: visualization of empty or populated worlds, spatial or chronological navigation, information retrieval, storytelling, role playing... Any attempt to correlate learning and Cultural Presence needs first to assess the **specific usefulness**, the degree of Cultural Presence, and the factors associated to each approach.

## 5. P for Presence and for Present

We suggest the emphasis should be put in task-oriented **interaction** rather than in visualization, and virtual environments should be presented as **simulations**. Consequently, we may want to use VA to learn not about the past, but about how we depict it. "Cultural" in Cultural Presence refers to the **present** context of application.



L. Siret: Grave goods from Fuente Álamo (Spain)

## References

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