RESEARCH THEME

XL cycle – a.y. 2024/2025

Title of the doctoral research	Advanced Simulation of Cultural Places and Exhibitions. Design for Inclusive Experience, Accessible Environments, and Heritage Visualization
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Abstract

The research focuses on the emerging subject of digital heritage, content digitalization & AI, and universal accessibility to investigate all the related topics during a visit to a cultural place, including visitors, exhibitions, physical environment, and objects. The study is going to deal with the following questions:

-How can an interaction design model be developed based on dynamic simulations of existing installations and experience environments for cultural sites?

-What can be used as an indicator to evaluate the effectiveness of the process and design workflow?

-How do we evaluate it, introducing modelling (CAD/BIM) and simulation environments (Game Engine/AI)?

-How can the physical experience be extended by adopting the metaverse?

The methodological research objective is to explore using digital technology (BIM, Game Engine) to digitalize interior design and make different types of cultural heritage accessible. An itinerary and interactive display of tangible/intangible heritage will be presented and tested through the advanced simulation to visualize immersive 3D environments. In this study case, a real-time rendering engine monitors indicators, including curators and operators, and allows diverse target users to participate. Field test and process references will benefit from the recent research on the Roman Theatre of Amman on the sidelines of an international cooperation project on the experiential and interactive valorization of the museum collections.

Keywords	Simulation, Artificial Intelligence, Museology.