



**POLITECNICO  
DI TORINO**

# Honors thesis

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COURSE OF ARCHITECTURE CONSTRUCTION CITY

*Abstract*

**New frontiers of technology  
for the use of the cultural heritage:  
An App for the Sala delle Feste e dei Fasti**

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Today it is observed that some cultural assets of inestimable value, in spite covered by the nomination of a World Heritage Site by UNESCO may be less usable, as limited by the protection, restoration work or their current use, as is the case of the architectural complex chosen by this thesis.

These limits may have possible solutions through the use of instruments deriving from the technological evolution applied to cultural heritage, in particular the argument refers to the role that has taken on the Virtual Heritage (VH) as an implementation tool of cultural diffusion of the Cultural Heritage.

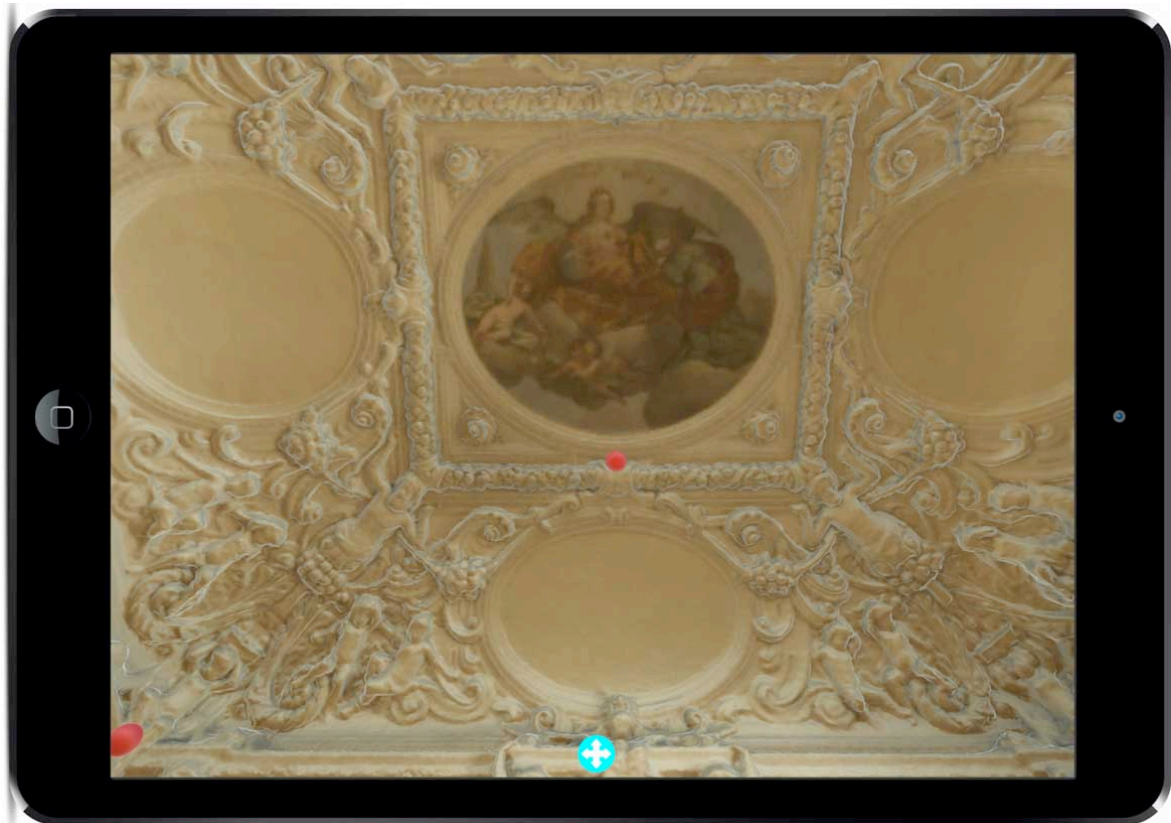


Fig. 1 Interactive virtual model of “Sala Feste e Fasti del Castello del Valentino”

About this new field opens my research, having selected an UNESCO heritage, the “Sala Feste e Fasti del Castello del Valentino”, and through the use of unconventional methods belonging to VH was created an application for smartphones and tablets thanks to which you can navigate within the photogrammetric model of the room and interact with it to get additional information of various kinds.

The thesis has been addressed with a scientific approach by dividing the research in four main parts corresponding to: objectives, methods, processing of 3D models using Serious Game and results.

The part concerning the objectives consists of a general overview of current practices for the use and protection of cultural heritage, since the objective is to create a product falling within the latest technologies related to the knowledge, protection and communication of heritage.

The second part describes the conventional and non-conventional methods used today for the detection of cultural heritage, or the use of photogrammetry for the generation of a

reality-based 3D model and exploitation of a software for the creation of video games in order to present a cultural heritage form of navigable model.

The third part is the operational and technical heart of the thesis, since it took inserting and processing of the model derived from the relief in Unity3D, reference program for all video game developers.

The ultimate goal, in addition to test the interoperability of tools and data between different applications areas, has been to create a basic communicative product composed of a navigable model characterized by an interactive system able to provide informative details on the room, through the pressure of characteristic points arranged within the model. (Fig.2) The development of the model and the comparison with the computer language made it possible to write and publish an App designed for iOS devices, containing the interactive and queryable model of the room. (Fig.1)



Fig. 2 Example of infographic form

The results show the adhesion of the project to the class of VH, found in many phases of the workflow for the creation of the App. The project brings possible future developments strongly linked to the use of a reality-based model. There is evidence, in fact, that on such 3D models you can base the latest conservation strategies.

Moreover the use of dedicated software for the creation of video games allows us to consider the possibility of a subsequent future project, through the creation of a virtual tour get into the guise of a real video game, composed by levels to overcome with questions in a cultural way.

Finally, the project has been planned to be increased from interactive virtual models of each characteristic environment, in order to place the “Castello del Valentino”, in a virtual tour project. (Fig.3)

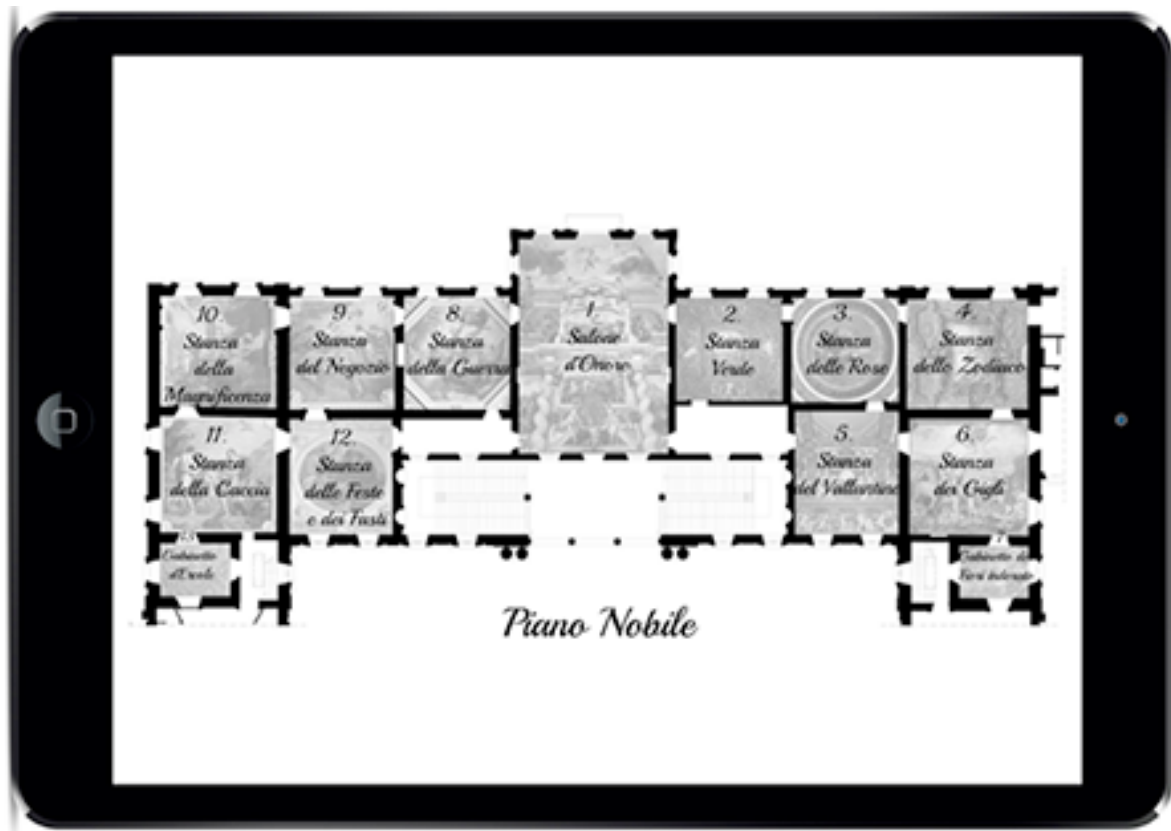


Fig.3 Start Menu designed to contain the virtual models of the main floor of the Castello del Valentino