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ABSTRACTS

Semantic enrichment of the geometric elements of historical buildings in the digital model

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Abstract

Three-dimensional data acquisition technologies are successfully used in the three-dimensional representation of historical buildings of immeasurable value for a nation. In recent years, there is a tendency to extract as much information as possible on these heritage buildings.

This article presents the virtual reconstruction of some geometric elements of historical buildings with the aim to use a semantic construction of the digital model. The virtual model will contain both the digital model of the historical building and its cognitive system.

The digital model allows to represent building's architectural elements. It is important that semantic information be included in the 3D digital model, as conceptual and relational data are not highlighted, only pure geometric data playing an essential role in representations.

Thus, after the geometric modeling of the buildings, their semantic modeling will be achieved by semantic enrichment of geometric elements using ontologies.

In order to integrate information from a domain, it is necessary to have a unique representation of ontologies, since ontologies in the same domain can differ as syntax, structure, semantics.

As is well known, web applications are receiving information and not raw data. The information will be stored as structured data, so each information has to be modeled at the semantic level, depending on what we want to express.

In conclusion, by using the semantic modeling of historical buildings we can add much more information about these buildings. Many of this information are lost in time. When several important buildings have been modeled using the same unitary structure, they can be represented in a semantic Web.

By using the semantic web and an open data platform, the user will have access to the full data of historical buildings that have been semantically modeled.

Based on the digital content obtained, processed and annotated, queries can be made and relevant information can be retrieved from the semantic point of view.