Keynote Address of Dr. Livio De Luca

Semantically-Enriched 3D Representation of Heritage Buildings

Three-dimensional representation is becoming an effective support for the documentation of the state of conservation of heritage artefacts, for the study of transformations of the built environment, for spatial planning and for cultural diffusion. New 3D digitisation technologies now offer effective means to observe and analyse historic buildings with more accuracy, completeness and timeliness. Nevertheless, the application of these new technologies produces a real problem of information overload.

The growing mass of point clouds, 3D models, un-interpreted data make indeed emerge a great need for innovative methodologies assisting data processing, sorting and analysis by researchers who want to use it for advancing the knowledge of cultural heritage.

Exploring in depth the informational value of these new representation systems allows introducing new approaches to the analysis of artefacts so distant in space but so close in features (typologies, styles, compositional rules, etc.) stimulating original frameworks seeking to establish linkages between the architectural shape and the amount of interactions between multiple agents in space and time.

Our research works aim to clarify the potential of structuring heterogeneous information according to semantically-enriched 3D representations of heritage buildings for several analysis needs: documenting the state of conservation and monitoring degradations, indexing and retrieving iconographic sources, analysing and representing spatial-temporal transformations.