

# Digital Animation for Representing Architectural Design

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## INTRODUCTION

Since the late Nineties of XX century digital movies have been emerging as one of the main methods for submission of architectural designs at international competitions, public presentations and shares on contemporary masters' websites, allowing to preview buildings, spaces and urban environments before their eventual construction.

The chapter highlights how the ability to access the fourth dimension, through the construction of a sequence of images, constitutes a specific prerogative of the digital representation, which goes beyond the static constraint imposed by conventional methods of representation codified by the Descriptive Geometry in the previous centuries.

The great complexity of architectural video production has led to the birth of new professionals who specialize in modelling, rendering, animation, graphics, montage, editing and post production and work in specialist studios. In the past, this had resulted in the generation of specific and recognizable languages: the language of the design was overlaid by that of its narration, and they were not always in harmony one with the other.

The author investigates on the methods, techniques and languages of the fourth-dimensional communication of architecture, unexplored area of research thus far, already the subject of previous studies, relating them with the masters' personal poetics.

The chapter provides also analysis and critiques of several case studies collected by the author from the beginning of the phenomenon, and traces an ideal interpretation path, due both to the changing technologies and the emerging specific languages.

## BACKGROUND

Digital modelling has affected the entire design process in recent years, starting with the conception through the control and communication of designs and finally to the provision of tools for building construction and then management activities. For the design stage of the process, these new modelling tools seem to have unified the constituent elements of drawing and design, reconstituting them within the etymological roots of the Latin term *designo*, the twofold meaning of which alludes to an abstract component, indicating the mental processes intrinsic to design, and another concrete component relating to the tangible operation of drawing (Garzino, Spallone, & Lo Turco, 2011).

These tools offer a possible answer to Rogers's wishes, who in 1990 said that "what is needed... is for the meaning of drawing (and therefore also the pedagogical and practical interpretation that is derived from it) not to be just the descriptive representation of an object generated by means of symbols, but for its ancient semantic value to return to it, which is summed up today by the English word design (as opposed to drawing), in which the symbols themselves contain the concept of thought, concrete intention and the design of an object" (Rogers, 1990).

Digital models have a syncretic nature which offers new opportunities to the scientific research and architectural design: tests and errors occur in a space in which our experience of problems are rendered fluid and immediate as in an architectural promenade, "3D computer models... allow more enhanced and more controlled interaction

between users and models, they are able to cover the whole range of possible models in a single system of representation” (Maldonado, 2005).

Moriconi, an earlier scholar of infographics, underlined that “through the infographic support, digital drawing simulates a hypothetical reality, goes beyond the limitations of the static and allows interaction with any type of sign. With the creation of virtual images, infographic technology represents what is perhaps the most appropriate tool for interpreting the complexity of reality” (Moriconi, 2001).

According to Manovich the rise of the movie camera as a universal paradigm for the interaction with any data which is represented on three dimensions goes back to the 1980s and 90s. Indeed he affirms that “as the computer culture is gradually spatializing all representations and experiences, they become subjected to the camera particular grammar of data access. Zoom, tilt, pan and track: now we use these operations to interact with data spaces, models, objects and bodies” (Manovich, 2011).

As a new medium, the animation of digital models requires the establishment of relationships with several disciplines such as communication sciences and cinema engineering and with technologies like that of video games and it must also pass the test of comparisons with the established conventional technologies of film production. “Considering architecture as a form of art, we might learn from other artistic disciplines, such as moviemaking (cinematographic approaches, sequencing and animation), theatre (physical expression, interaction, improvisation) and music (rhythm, harmonic variation, but also digital recording and sampling). These may expand the palette of architecture (traditionally making use of drawings, models, pictures and symbols)” (Breen & Breen, 2011).

This triggers a critical discussion on the ontological nature of films, on their narrative form and on their character of exploring human emotions, and it implies the attention of videos

of architecture to the perceptual effects produced by relations between persons and space.

Three dimensional digital models frequently constitute the basis for the production of particularly effective visualizations, using a variety of techniques, which can be exploited for different purposes. As Engeli noted, “the creation of specific messages relating to space requires an in-depth knowledge of the intrinsic characteristics to the different possibilities and to the aspects that are wished to emphasize.

An object that is viewed can be interpreted in different ways. The main parameters (light, materials, perspective) can bring out the nature of an object, work against it, reveal new information and add or hide aspects of the object” (Engeli, 1999).

Engeli also underlines the role of narration in the communication of a design: “when you talk about a design, the aim is to give the public an opportunity to identify with the object that is being presented. This is the main reason why it is necessary to tell stories about designs. In reality all architects perform a similar operation when they present design ideas, but usually it is not a capability that is used knowingly, despite the importance of that activity for the communication of ideas” (Engeli, 1999).

The producers themselves, who include multidisciplinary groups, composed of architects, graphic designers, modellers, producers and musicians, underline the importance of animations for the representation in architecture. In an old interview, Scott, Hampton, Alsop and Cocke, members of Squint/Opera, one of the most famous creative company, underlined the importance of videos in the presentation of a design: “I would like to encourage all architects to tell the story of their designs by using videos, because it is a tool which helps people to see a design in a different way. Our experience of architecture is dynamic: we move through spaces and it is precisely this aspect that a film is able to explore” (Oddo, 2004).

Taking the part of the stakeholders, also today the foresight of Gregotti, who observed that “who

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