MOVING IN FILMIC SPACES

Relating camera movements to spatial archetypes in architectural animations

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Abstract. Architects sometimes use architectural animations to explain their designs. To probe the practice of architectural film/animation, this paper assembles filmic spaces as a conceptual tool that connects spatial archetypes with camera movements.

Keywords. Architecture; animation; representation; film; camera.

1. Introduction

Architectural animations are often shaped by CAD software, which depends on the creation of paths, offering various degrees of freedom, little guidance, and few editing options. This leads to conventions of depicting movement in space through devices such as fly-throughs, combined with quickly changing angles, rotations and swirls that tour the building, speeding up at times and slowing at others. Techniques from cinema can yield richer spatial experience.

This research examines spaces in architectural animations in terms of both form and camera movement, encompassed by the term “filmic spaces”. In order to achieve this goal, we present a study in two stages. In the first stage, we review relevant literature on architectural animation that ties different types of “spatial forms” to various “camera movements”. We develop a “filmic space” concept based on Cullen’s serial vision (Cullen 1995), who views spatial experience as a transformation of form revealed through movement in space. We then discuss the outcome: filmic spaces.
Instead of regarding space as a static form, we view space as one that changes from one state to another through camera movements. To understand the relationship between spatial forms and camera movements, the second stage comprises a close-reading analysis of films, which looks for filmic spaces, and understands how spaces and camera movements are related.

2. Literature review

The design of an architectural animation is strongly tied to the intended goal. These can include non-commercial goals, such as exploring design alternatives and decisions, or documenting a historic building. Commercial goals can address data-communication, educating and informing about the building form, design features, and construction methods in order to promote design to clients and developers. Animations are also used to make an impression and convey an experience to occupants who are being sold a dream or lifestyle (Rafi 1998, Serrato-Combe 2004, Koutamanis 2005, Sanguinetti 2005, Kwee et al. 2006, Swathika et al. 2006, Alvarado 2008).

Architectural animation design is also influenced by the audience. For instance, if the audience were developers of large-scale projects, the animation will tend to have bird-eye views and fly-throughs to demonstrate the overall design. Meanwhile, when the animation addresses potential occupants, the aim is often to sell them an experience or a lifestyle, and we would find more low-angles and immersed points of view. But if we were to move beyond these general impressions on architectural animations, how does previous research address the issue of architectural animation design?

Many previous studies on architectural animations relate camera movement to space types (Goldman and Zdepski 1987, Goldman and Zdepski 1988, Kwon and Nagakura 2004, Alvarado et al. 2005, Chatzitsakyris and Nagakura 2005, Calderon et al. 2006, Alvarado 2008). Since spatial form can become overwhelmingly complex, they start by identifying simple forms like: linear, layered, bent, broad, and tall spaces (Kwon and Nagakura 2004); arena, and maze (Nitsche 2008); path, edge, district, node, and landmark (Lynch 1960); composition, rhythm, scale, proportion and verticality (Calderon et al. 2006). Following the tradition of previous literature, we turn to film to perform close-reading analysis. This is to understand the nature of filmic spaces as a combination of camera movement and spatial form.

3. Close reading films

Close-reading required the careful study, analysis and interpretation of the particulars in a film. Through disciplined immersion, the perceptive senses are
attuned to observe and extract repeated patterns (Kain 1998, Mantex 2011). We selected film clips with strong architectural components and spatial features, and those featuring spatial exploration. We searched for spatial archetypes and noted their connections to certain camera movements. We stopped encoding when we have reached saturation, a state when no more can be learnt from additional viewing. These films include: a scene from Marie Antoinette (Coppola 2006) in which Antoinette explores Versailles for the first time, a chase scene in Brazil (Gilliam 1985), in which Sam runs through a series of narrow arcade spaces and ends in a funeral home; a scene from The Glass house (Sackheim 2001), in which two teenagers explore the extraordinary home of their caregivers; a scene from Running Scared (Kramer 2006), in which an abducted child searches the apartment of his kidnappers for an exit; A scene from Duplex (DeVito 2003), where a young couple explore a duplex house before deciding to buy it; the Spectra Town scene from Big fish (Burton 2003); several scenes from The Fall (Singh 2006), which show monumental buildings; scenes from Gladiator (Scott 2000), including when the city of Rome is shown through a bird-eye view, and when the gladiators are awed by the monumental scale of the coliseum.

The outcome of our analysis combines camera movements, spatial types and characters into what we call filmic spaces. We argue that such triples provide elements with which to conceive and develop architectural animations.

4. Filmic spaces

Filmic spaces associate spatial forms with specific camera movements. We start with simplicity before moving on to complexity, and thus identify basic camera movements corresponding to three primary shapes: (1) Point, comprising a stationary camera position in space, observing occurring actions, but not affected by them; (2) Line, where a camera travels along a path from one point to another. Lines comprise dolly forward or backward, pedestal up or down, and tracking-sideways left or right; (3) Circle, where a camera rotates around a central point. Primitive motions for circles include a pan (left/ right outward-rotation), an arc (inward-rotation), or a tilt (upwards or downward-rotation, Figure 1). We then proceed to the application of these basic camera movements to convey spatial archetypes. These basic camera movements can either reinforce explicit spaces, or create implicit spaces: ones that are not physically defined. In the following sections, we demonstrate several filmic spaces, with references to key films in which they occur. We give each filmic space a title in the form of CAMERA:SPACE:CHARACTER, describing respectively the camera movement, space type depicted and role of character. When a character is not involved, the last element of the triple is null.
Figure 1. Basic camera movements include point, line and circle.

4.1. POINT:AXIS:COUNTERPOINT

A stationary camera observes characters moving against a spatial background. The characters amplify spatial qualities. In Marie Antoinette, POINT:AXIS:COUNTERPOINT is used to convey a major axis at Versailles and to convey the vastness of space in with respect to human scale (Figure 2).

Figure 2. A stationary camera observes characters moving across the screen, revealing space in this scene from Marie Antoinette (Coppola, 2006).

4.2. LINE:PATH:FOCUS

One of the horizontal camera movements is the dolly, which penetrates the depth of space. In this pattern, a dolly movement aligns with the passage of
a character through the space. The movement may observe the character as a third person or as a first person. The character serves to reveal the path and to give meaning to its traversal. Examples of such paths include a road defined by floorings and ceiling (Figure 3a), or an arcade defined by vertical elements on the edges of a path, creating punctuation between solid and void (Figure 3b). A path can also transform from one state to another. For instance, in Figure 3c, a clearance turns from narrow to wide, dark to bright, and inside to outside, giving a feeling of relief. The tunnel gives the reverse effect. Another horizontal camera movement is Figure 3d, tracking-sideways, which emphasises the width of space. It tracks subjects through silhouetted foreground elements to establish the context in which they are situated, or reveal the perspective depth of space. In Figure 3e, a combination of tracking-sideways and dolly movements help create a reveal effect, by having a visual surprise concealed behind the gate, then revealing it through camera movement.

Figure 3 reveals these linear camera movements. The dolly movement is used for spaces like a road (Figure 3a), or an arcade (Figure 3b) created by people standing on the edges of the path in a scene from Marie Antoinette (Coppola
In Figure 3c, a tunnel and clearance space is created in a scene from Brazil (Gilliam 1985). In Figure 3d, the tracking-sideways movement reveals the market place where the characters walk in a scene from *A Series of Unfortunate Events* (Silberling 2004), and also reveals the depth of the grid space in a scene from *Manufactured Landscapes* (Baichwal 2006). In figure 3e a combination of dolly and tracking-sideways camera movement follows the protagonist to reveal a visual surprise behind the gate in a scene from *Tideland* (Gilliam 2005), creating a maze-like space.

4.4. LINE:VERTICAL SPACE:NULL

Tall spaces profoundly affect architectural experience. The standard horizontal orientation of moving images is ill-suited to convey such experience. Film-makers use camera movement to convey verticality. Such movements can also create implicit space that is experientially more than physically defined. For example, the boundary between a village and its surround may define a gate. Such implicit spaces may mark the threshold between two territories, or serve simply to introduce or exit a scene. Characters in this pattern play a lesser role or may even be absent – the focus is on conveying spatial effect.

Figure 4 reveals the vertical camera movement can emphasise the length of a shaft space (c), through (a) a tilt, as in *Marie Antoinette* (Coppola 2006), or (b) pedestal movement, as in *Pan’s Labyrinth* (Del Toro 2006). In (d), a scene from *A series of Unfortunate Events* (Silberling 2004) implies a gate space, as the camera pedestals up when a character exits the space.

![Figure 4. The vertical camera movements emphasise the height of space.](image)

4.3. CIRCLE:ROTUNDA:NULL

A rotunda space can be evoked by a rounded camera movement, such as an arc in or a pan movement. The court space evokes various rounded camera movement like arc or pan.
Figure 5 reveals (a) The rounded movement enforces the feel of the rotunda, and includes movements such as (b) arc, observed in *The Fall* (Singh 2006) or (c) pan, in *Marie Antoinette* (Coppola 2006).

6. Discussion and future work

This is a descriptive work that acts an introduction to the larger scope of our research. In this paper, we proposed the concept of *filmic spaces* in architectural animations. The proposed filmic space model combines spatial form with camera movement. Due to the limitation of this short paper, we have only explored two aspects, though they are not exhaustive. Our larger framework explores further cinematic techniques like narrative, editing, composition, lighting, sound, and camera angles.

Note

We used hand drawings for the figures in this paper for two reasons. First, copyright clearance for film segments can be difficult, while the copyright to hand-drawings lies with their creator. Using hand drawings means that we were unconstrained in sampling films and thus avoided any bias due to arbitrary difficulties in sourcing material. Second, hand drawing allowed us to emphasise drawing features to relate to points being made.

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References


