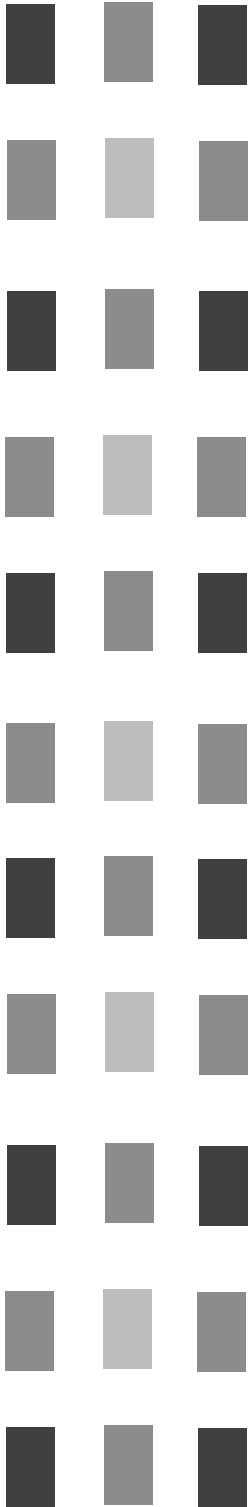


# Hyper-architectural typologies in virtual gaming environments

*Leslie Morris*



With market revenues expected to increase to \$21 billion by 2005, the dramatic growth and proliferation of virtual gaming spaces in recent years is having an unheard of impact on where and how we spend our time. This fundamental shift in contemporary life has given cause to rethink definitions of "place" and architectural space and expand their meaning beyond that typically associated with the physical laws, boundaries and social structures of the built environment.

In computer games, however, the current emphasis has focused largely on designing architectural metaphors for gaming environments which are based on recycled, real world examples. It would seem that the virtual game space has been subject to a digital colonization by familiar typologies from the built environment, which offer only a subtle indication of their inherent capabilities as virtual space constructions. But virtual space "is entirely different from physical space. It is a single environment allowing every imaginable combination, permutation and configuration of networks"<sup>1</sup>.

When examined in the context of a computer game, its players and their motivations, architectural representation in game spaces seems quite logical, but after the initial techno-euphoria of another ego-shooter wears off, one is left wondering if these spaces are capable of offering anything more. Reflecting on the future of art at the end of the nineteenth century, Edgar Degas wrote that "by freeing itself from Nature's tyranny, art sums itself up rather than extends itself"<sup>2</sup>. Is it possible then, that by becoming increasingly technologically liberated, that computer games and the development of their spaces will become less interesting in substance? Is it not possible to design virtual spaces for games which are more than just a familiar backdrop for an interesting storyline, but which offer new insights into the meaning of the medium itself?

Chris Crawford writes that a game is "a closed formal system that subjectively represents a subset of reality" whereby reality is perceived as "the intricate webwork of cause and effect by which all things are tied together"<sup>3</sup>. It is through the interactions inside of this webwork of conflicts and obstacles that a player gains experience and makes the decisions which will affect the outcome of the game. Because the nature of conflicts can also involve danger, a game offers a secure environment for its psychological experience without its associated physical risks. More simply stated: "a game can be considered a framework for structured play"<sup>4</sup>. A central component to the structure of all games is the manipulation, exploration and domination of space by their participants.

The question of who plays computer games has evolved dramatically and in lock step with the development and proliferation of computer tech-

nology since the beginning of the video game industry in 1974. Early in their evolution, computers and programs were almost exclusively the domain of technically oriented young men. Communication was text based and required much patience and a very precise dialogue or syntax in order to get any kind of reaction from the machine. Today computers are interfaced through simplified graphical representations and are available to an ever growing cross section of society - men, women and children alike. About sixty percent of all Americans or about 145 million individuals say that they routinely spend time in virtual game environments with 32 percent aged 35 or older and 43 percent of all players being women (ISDA, 2000). But what motivates people to spend more time away from reality and what impact does this have on their perception of space and place?

Computer games offer a powerful method to engage people in reconstructions of reality which allow them to experience fantasies and situations free from the everyday social and physical constraints of real life. Indeed, for many individuals, virtual environments are the only alternative for certain real-life activities. Celia Pearce reflects that a wheelchair-bound Ultima Online player who, when asked why he liked playing the game, replied simply that "because in it, I can run"<sup>5</sup>.

Other aspects such as learning, exploration, escape, social activity, stress relief, achievement, dominance and recognition offer further insight into player motivation. Virtual game spaces offer an interactive, structured and focused environment for players to safely and "realistically" live out their game playing fantasies. Accordingly, as virtual space constructions, architectural metaphors play a key role in the establishment of convincing gaming environments.

### **Game Space and the Role of Architecture**

From the player's point of view, virtual game space can be classified into three general typologies: 1) first-person perspective, 2) third-person perspective, and 3) world-view perspective (isometric and 2D projection). These typologies can exist individually or be freely combined to generate specific time, space and body relationships. Regarding the importance of the person's perspective vis á vis virtual space, Derrick de Kerckhove writes that the "point of view is unique and establishes the position, both physical and psychological, and also ontological, of the self"<sup>6</sup>. This point of view, what de Kerckhove also refers to as the "mental space" is an indispensable component of gameplay and virtual space itself (fig. 1-3).

Virtual game space is composed of three inter-related main layers, irrespective of spatial typology: 1) a technical and representational structure 2)



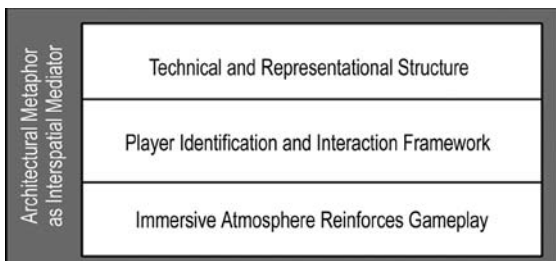
1 | First-person, *Doom III*



2 | Third-person, *Blade Runner*



3 | World-view, *Sim-City 3000*



4 | *Virtual Space*

a framework for player identification and interaction, and 3) an immersive atmosphere which reinforces gameplay. These layers can be viewed as a continuum of increasingly more abstract multidimensional engagement levels which are interspatially linked by an architectural metaphor. As we will see below, this spatial continuum is a dynamic construction where information is constantly being exchanged (fig. 4).

### Layer 1

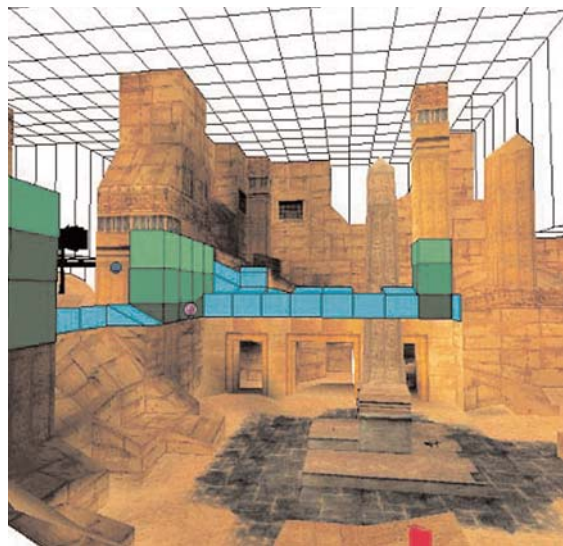
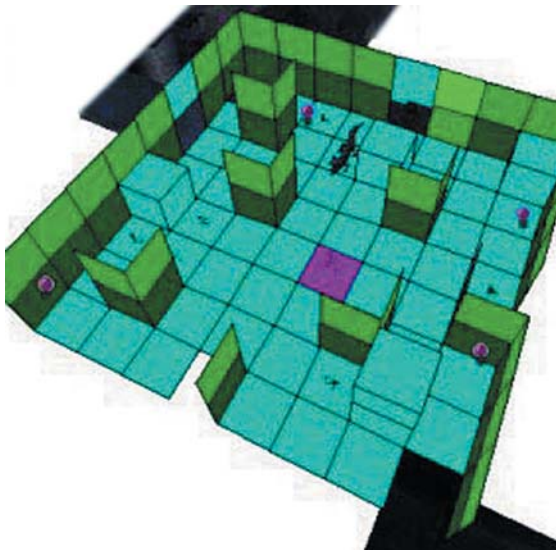
The technical and representational structure of a virtual game space refers to a tightly woven, controlled system which allows a game to take place. It is actually made up of two transparent sub-levels, the background and the foreground, which are in a state of constant, fluid communication.

The technical system, or game engine, works in the background and provides for the mathematical computation of all of the relationships necessary to successfully play and complete a game. The engine is responsible for controlling, monitoring and evaluating a matrix of interactive possibilities ranging from the behavioral and physical attributes of avatars and elements controlled by human players and the computer, to collision detection, to the storage of experiences (memory), to the generation of the visual space.

The representational system works in the foreground and contains the architectural metaphor in which the player's character interacts with the game and derives a sense of identification. It is here that the player's mental space is activated to create a believable and immersive game experience. "The main function of game spaces is to guarantee the context ... the space is an institution of security. It is a container which structures events and raises the level of authenticity of the body and game perception through its realism"<sup>7</sup>. The entire world of the third-person game *Lara Croft* is constructed and indexed in relation to her physical capabilities. Spatial relationships between the constructed environment, objects, villains and conflict situations are programmed and visualized in terms of "constraint, concealment, obstacles and exploration"<sup>8</sup> (fig. 5, 6).

### Layer 2

Defining the representational system is the game's framework for player identification and interaction in relation to the story. This is perceived on two levels, each having an influence on the development of the player's mental space: 1) the degree of psychological identification between player and character as experienced through performance and progress during gameplay, and 2) the ability of the game space to cultivate and support interaction



5, 6 | Level Editor, spatial relationships determined by the characters' physical capabilities

between the player, objects and other characters as they relate to the story. If the spatial relationships and metaphors are poorly designed or the story is weak, the player will experience "failure" in the form of sudden death, frustration, disorientation or confusion and lose interest in the game.

### Layer 3

The main factor determining the spatial relationships of all elements in the game space is the story. Storytelling brings the virtual space to life by structuring character and object behavior, guiding dialogue and interaction and providing clues as to how continued progress can be made. These parameters are visualized by means of architectural metaphors which create a sense of place and lend further credibility to gameplay.

The storytelling environment can also be viewed in terms of a fluid spatial relationship between the interactive unfolding of the story in the foreground and the databank of alternatives and outcomes for the entire story in the background. Elements of the story appear and reappear in the foreground as necessary during the course of the game and penetrate into the player's mental space, constantly enhancing it and deepening the experience until the game is completed. This deliberate manipulation of mental space requires the intentional and disciplined use of a mixture of familiar and unfamiliar references (objects, textures, building typologies, archetypes) pertinent to the story in order to achieve the desired result – an immersive gaming experience.

### Architectural Representation in the Game Space

Architectural metaphor serves as a mediating interspatial constant between the layers of virtual game space, but what about its representation? It would seem, based on contemporary examples of architectural space in computer games and in relation to the continual advances in computer technology, that the design of such spaces has been sorely neglected. Programmer and game designer Ernest Adams states that the use of familiar typologies is necessary, for it "has to do with the fact that we rely on players to use common sense about the function of certain kinds of familiar spaces, and it is cheating to violate their legitimate expectations"<sup>9</sup>. This may be true, but does it mean that virtual space designers are to be forever relegated to producing poorly adapted reconstructions of the built environment? (fig. 7, 8)

The fact that a player requires a solid frame of reference cannot be ignored, but it demands only that the designer strike a delicate balance between the introduction of the unfamiliar in relation to the familiar. And does familiar always imply a reliance on a superficial building typology, or can it be extended to penetrate into a player's mental space? Theme park architect and game designer Don Carson writes that archetypes are powerful tools that can be used to draw the audience to experience certain 'feelings' about a space which defy common sense and force them to make decisions based on a more primal part of themselves<sup>10</sup>. This would mean that even if typologies are new, familiar spatial relationships can still be identified and used to design spaces essential to telling a story and playing a game. One must only look a little deeper. But design decisions have to a large extent "remained in the hands of the technologists and





8 | Architectural Metaphors: *Escape from Monkey Island*, comic architectural fantasy



7 | Architectural Metaphors: *Grand Theft Auto*, eclectic building collages

not been passed to the artists. These guys can write beautiful operating systems, languages, linking loaders, and other technological wonders, but artistic flair has heretofore been treated as subordinate to technical prowess.<sup>11</sup> This is not to say that these aspects are not important, they are, but to elevate the level of spatial experience requires a broader understanding of all design factors and the ability to synthesize them into a harmonious whole.

Regarding architectural design in cyberspace, Borre Ludvigsen writes that "it is infinitely easier and more expedient to create the architecture of fictional cyberspace than it is to give the matrix of cyberspace meaningful form"<sup>12</sup>. Research and

development in the games industry is typically integrated into game production itself with the exploration of innovative architectures being one of the last areas where new technological advances trickle down to. In the context of cyberspace, Ludvigsen continues that "such attentions, when they do arise, come about through external techno-economic pressures affected more by the health of stocks and shares than the needs of order and planning" (2001). The development of new spatial metaphors also involves financial risks that many large mainstream producers are not willing to take, and once again we are reminded of Degas who argued for a more critical exploration of art – for to stop looking leads to a loss of substance.

## Conclusions

Although it is not always the aim of a computer game space to exploit the medium, it is safe to say that most games do not fully explore the medium's inherent spatial possibilities. Virtual game spaces are made up of an interconnected structure of multidimensional layers, whose nature offers limitless opportunities to challenge and transform the perception of their spatial and temporal dimensions.

By simply adjusting a player's point of view in a game for example, it is possible to accelerate time and compress space. And if a mistake in a user designed level of *Unreal Tournament* which allowed players to occasionally slip into a spatial "black hole" and vanish from wide open game space only to later reappear and ambush their opponents is any indication, then there is wealth of untapped potential trapped inside the multi-layered dimensions of virtual space. An exploration of themes such as convergence, penetration, simultaneity and ubiquity in relation to the space's dynamic structure offers exciting opportunities for the exploration of new relationships and understandings.

The possibilities for realizing such spatial constructions already exist in most gaming engines today – the only thing missing is the story line.

Author:

Leslie Morris

Brandenburgische Technische Universität Cottbus

## Notes:

- 1 De Kerckhove, Derrick: *The Architectur of Intelligence*, Basel, 2001.
- 2 Virilio, Paul: *Un Paysage d'evenements*, Paris, 1996, english edition trans. by J. Rose: *A Landscape of Events*, Massachusetts, 2000.
- 3 Crawford, Chris: *The Art of Computer Game Design*, 1982, Out of Print, Electronic Version: *The Art of Computer Game Design*, 1997. Washington State University. <http://www.vancouver.wsu.edu/fac/peabody/gamebook/Coverpage.html>
- 4 Pearce, Celia: *Reflections on Entertainment in the Interactive Age*, 2001. <http://www.annenbergl.edu/interactive-age/assets/celia.html>.

- 5 Ibid.
- 6 Op. cit., note 1.
- 7 Funken, Christiane, Löw, Martina: *Ego-Shooters Container: Raumkonstruktionen im elektronischen Netz*, in: Maresch, R., Weber, N. (Hrsg.): *Raum, Wissen, Macht*, Frankfurt/Main, 2002, pp. 69–89, (cit. trans. by Leslie Morris)
- 8 Adams, Ernest: *The Role of Architecture in Video Games*, 2002, [http://www.designersnotebook.com/Columns/047\\_The\\_Role\\_of\\_Architecture/047\\_the\\_role\\_of\\_architecture.htm](http://www.designersnotebook.com/Columns/047_The_Role_of_Architecture/047_the_role_of_architecture.htm).
- 9 Ibid.
- 10 Carson, Don: *Environmental Storytelling: Creating Immersive 3D Worlds Using Lessons Learned from the Theme Park Industry*, 2000, [http://www.gamasutra.com/features/20000301/carson\\_pfv.htm](http://www.gamasutra.com/features/20000301/carson_pfv.htm); Carson, Don: *Environmental Storytelling, Part II: Bringing Theme Park Environmental Design Techniques to the Virtual World*, 2000, [http://www.gamasutra.com/features/20000405/carson\\_pfv.htm](http://www.gamasutra.com/features/20000405/carson_pfv.htm)
- 11 Op. cit., note 3.
- 12 Op. cit., note 1.

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