



THE ART OF CONTESTED SPACES

By Kurt Squire and Henry Jenkins

Let's try something bold. Let's start from the assumption that games are an important form of contemporary art. What kind of art are they? Most often, critics discuss games as a narrative art, as interactive cinema or participatory storytelling. Perhaps, we should consider another starting point, viewing games as a spatial art with its roots in architecture, landscape painting, sculpture, gardening, or amusement park design.

Game worlds are totally constructed environments. Everything there was put on the screen for some purpose -- shaping the game play or contributing to the mood and atmosphere or encouraging performance, playfulness, competition, or collaboration. If games tell stories, they do so by organizing spatial features. If games stage combat, then players learn to scan their environments for competitive advantages. Game designers create immersive worlds with embedded rules and relationships among objects that enable dynamic experiences.

THE DIGITAL GAME BOARD

Games drew inspiration from sports (contests over goals or field position) and board games (contests won and loss according to movements around the game board); they also tap literary and cinematic genres that climax with spatial contests (the shootout in a western, the space battles in science fiction). A hybrid form, games

get their focus on space both from sports and stories.

Stripped to their simplest elements, the earliest digital games consisted of little more than contested spaces. Picture Pac-Man gobbling his way through a simple maze and trying to avoid getting caught by ghosts. As game technology improves, the potential for creating complex and compelling spaces seems unlimited. Strategy games, such as *Civilization* or *Age of Empires*, transform the entire globe into their game board, casting players as the rulers of expanding nation-states, locked in a struggle for global domination. Modern equivalents for the backyard, fields and woodlands where previous generations played capture the flag, first person shooters like *Castle Wolfenstein*, *Doom*, *Quake*, *Serious Sam*, or *Unreal Tournament*, pit players in primal struggles over more localized spaces, such as warehouses, rooms, or corridors. The shift from the top-down maps of *Civilization* to the through-the-gunsights perspective of the shooters suggests a much more immediate, moment by moment, participation in the struggles for spatial dominance. Single-player games feature linear levels that are not meant to be explored, but rather "cleared" of hostile creatures while multi-player levels feature multiple overlapping paths with dangerous intersections. Exceptional players learn to "read" tactical possibilities from the spaces themselves. Drawing on a concept from psychologist James Gibson, game designers design spaces or objects for their games which offer players certain "affordances," spaces or objects embedded with potentials for actions, such as hiding and shooting at other players.

Although its plot resembles early maze games such as *Berzerk*, *Half Life*, an action adventure game uses backstory, interactivity, puzzles

and atmosphere, to make a rich gamespace. The protagonist, Gordon Freeman, finds himself trapped in the bottom of a nuclear research facility surrounded by mutated space aliens and must fight his way to the surface. His struggle unfolds in a complexly designed, interactive, three-dimensional world of metallic surfaces, nuclear waste, expansive hallways, and cramped ventilation ducts. *Half Life* takes the player through a variety of atmospheres resulting in a rise and fall of dramatic tension.

Some gamers feel nostalgic for the simplicity, immediacy, and eloquence of early design solutions. Every element was carefully selected to minimize the demand for bytes and maximize player flexibility. Many independent game designers, such as *Blix's* Eric Zimmerman, or *Snood's* David Dobson, have embraced a "back to the basics" approach, stressing play mechanics and simple spaces over the "bells and whistles" of corporate games. In modern art, minimalists reduced their options to the minimum number of colors, shapes, lines and textures; they were more interested in the physical surface of the canvas rather than in mimicking real world perspectives. Dobson and Zimmerman are game minimalists, searching for the medium's simple core principles and stripping away unnecessary features.

SPATIAL EXPLORATION

Snood and *Blix* use simple rules to offer players unlimited play within limited gamespaces, whereas *Civilization*, *Unreal Tournament*, or *Morrowind* use more elaborate spaces to stage conflicts. Other games, inspired by *Dungeons and Dragons*, offer exploratory spaces, where players complete quests, solve challenges, or collect treasures. In exploration games, player mastery over a level, by besting an enemy, completing a puzzle, or simply pushing through

the obstacle course, is rewarded by allowing access to the next spectacular world. Reflecting this fascination with spatial exploration, the designers scatter these worlds with "easter eggs" (hidden treasures and secret areas not initially obvious to casual players).

Building on early exploratory games, Shigeru Miyamoto, who masterminded the *Mario Brothers* and *Zelda* series for Nintendo, revitalized the medium with his focus on innovative virtual environments. The bright colors, friendly skies, and beckoning caverns of *Super Mario Brothers* create a childlike realm that encourages play and exploration. Miyamoto rewards the player with magic mushrooms, gold coins, hidden treasures, and secret worlds that can only be unlocked by inventive play. In *Game Over*, David Sheff explains how Miyamoto extensively charted his game space: "When a game was nearly completed, he spread out its blueprints across a room full of tables that had been pushed together. The blueprint was the map of a game's pathways, corridors, rooms, secret worlds, trapdoors and myriad surprises. Miyamoto lived with it for days, travelling through the game in his mind."

Miyamoto's focus on spatial exploration helped to define those features that aesthetically distinguished electronic games from previous forms of play. He innovated a genre known as the "scroll game," where players move left to right through a space that unscrolled before them. Exploiting 3d modeling tools, more recent games seek stronger depth cues, allowing players to move through space in any direction including from foreground to background.

Game designers draw a distinction between games with "hard rails", which tightly structure the player's movements to unfold a

predetermined experience, or with "soft rails," which are multidirectional and multi-linear. *Rayman2*, a spatial exploration game with relatively hard-rails, masks its pre-structured trajectory through creative spatial design. The game makes effective use of off-screen space to hint at further adventures around the next corner. Its basic building blocks-- caverns, tunnels, bridges, rivers, paths, ledges -- provide narrative rationales for various constraints on our movement.

Game designers use spatial elements to set the initial terms for the player's experiences. Information essential to the story is embedded in objects such as books, carved runes, or weapons. Artifacts, such as jewels, may embody friendship or rivalries or may become magical sources of the player's power. The game space is organized so that paths through the world guide or constrain action, making sure we encounter characters or situations critical to the narrative. Such characters may propose quests or reveal clues, but the player decides whether or not to accept those missions. Game designers refer to such devices as embedded information, finding they allow for deeper and more flexible game experiences. As Tim Shafer, the lead designer on LucasArts's *Grim Fandango*, explains, the challenge of game design is to "lead the player along" a predetermined pathway without "making them feel that they are being controlled." Few, if any games, rival *Grim Fandango* for artfully meeting this challenge.

REALISTIC SPACE?

Many critics have assumed that the gradual improvements in game graphics will ultimately make game spaces indistinguishable from their real world counterparts. Yet, those game designers who explore photorealistic imagery often discover that achieving realism involves more than improving image resolution and may not be what players

desire.

Deus Ex takes place in about a dozen environments, most modeled after real spaces. Yet, as producer and director Warren Spector notes, "Believable settings raised expectations to unrealistic levels." Spector wanted every element from the design of the space to the development of the interface to contribute to a powerful sense of "being there." Spector argues that well-designed game environments present players with clear goals, so that the player is encouraged to identify problems and devise plans; each space has multiple entry and exit points; and there are always multiple paths around obstacles. According to Spector, these games create "possibility spaces," spaces that provide compelling problems within an overarching narrative, afford creative opportunities for dealing with these problems, and then respond to players' choices with meaningful consequences

Games, like *Tony Hawk 2* or *SSX*, promise players a realistic sense of what it would be like to participate in extreme sports. Often, they start with the challenge of recreating actual locales and arenas, as well as duplicating styles and moves associated with specific sports stars. Sports game designers note that they are responding to player expectations shaped as much from watching the sports on television as in directly playing them, so they build into the games aspects of the broadcast experience, such as voice-over commentary or instant replays. Much as in actual snowboarding, game mastery demands mastery over the run, learning the specific contours of the game space. Game designers provide bumps, jumps and ramps for players to perform tricks. The result is not realism but rather immersiveness. The realistic elements contribute to our sense of being there,

whereas various forms of exaggeration "perfect" the real world experience, making it even more exciting.

THE LEGACY OF ROMANTICISM

Many game designers are recruited from art schools and many continue to paint and to scan through art books searching for inspiration. As a consequence, a close consideration of game space reveals a broad range of aesthetic influences, including expressionism (which maps emotions onto physical space) and romanticism (which endows landscapes with moral qualities). As game designers dig deeper into these artistic traditions, they may develop more emotionally evocative and meaningful spaces.

The British game designer Peter Molyneux, who has been widely credited with helping to develop the "god game" genre, has often told reporters that his inspiration came from a childhood watching anthills, shoving the ground with his foot to force the ants to reroute or rebuild their environment, and tormenting them with magnifying glasses. In his games, players exert divine control over the environment, indirectly controlling how the world's inhabitants behave. In Molyneux's *Black and White*, player's choices have clearly defined consequences which are made manifest on the physical environment, much as the Romantic artists used landscapes to express allegorical or moral visions.

Romantic influences might also be felt in the elemental images of earth, water, fire and air running through *Sacrifice*. The game centers around the competition between gods and demons for human souls. Such games celebrate heroic struggles to master inhospitable environments, depicting nature as a destructive force that actively thwarts human will.

Brenda Laurel's *Secret Forrest* games, designed for girls, offered a more nurturing relationship to the natural world promising possibilities for contemplation rather than mastery. Laurel explained, girls wanted a place to go where they could daydream: "they thought that the garden/forest would be a place where they could find out things that would be important to them."

SURREAL SPACES

Surrealism is another modern art movement that has influenced game design. The surrealists created dream-like images which nevertheless followed many conventions of representational art, often deploying familiar stories (such as those in the Bible) as a basis for psychologically complex, symbolically-laden environments. Game designers, similarly, exploit the graphic possibilities of 3d modeling to create immersive environments that are vivid and tangible and yet totally imaginary.

American McGee rose to prominence as a level designer, who made memorable contributions to the *Quake* and *Doom* games. When Electronic Arts offered him the chance to develop his own game, he turned towards an unanticipated topic-- Lewis Carroll's *Alice in Wonderland*. In the distinctly gothic *Alice*, his protagonist, now dwells in a mental asylum, having been driven insane by her inability to discern whether her Wonderland adventures are real or hallucinations. She is drawn back to do battle with the Red Queen and her evil minions. We know these spaces -- the rabbit's hole, the lake of tears, the Red Queen's garden, and so forth -- from our childhood and yet they are disfigured and distorted through Alice's demented perspective.

Giants is another game set in a surrealist landscape with fantastic creatures; its icons seem to drip off of the screen like Salvador Dali's melting clocks. *Giants* unfolds in a world largely devoid of manmade structures, a landscape of earth, rocks, and sparse vegetation, rendered in bright blues, yellows and greens.

As Steven Poole argues in *Trigger Happy*, few games have really embraced a surrealist game aesthetic. While many games borrow visual cues from expressionism, most games are relatively conservative when it comes to modeling reality, bending rather than eschewing basic physical laws. *Giants* suggests how surrealistic elements might enrich future games.

ATMOSPHERIC DESIGN

Game designers increasingly focus on the overall "mood" or emotional color of their projects. Hoping to produce games which can provide a broader range of emotional experiences, they are drawing inspiration from classic melodrama, where elements of *mise-en-scene* become emotional correlatives for their protagonist's woes.

Yu Suzuki situates characters in more "everyday" environments. His epic role playing game, *Shenmue*, is set in a small Japanese village, circa 1986. The game's adolescent protagonist, Ryo, struggles against the men who murdered his father. Grey skies and snowy streets contribute to the game's sad, contemplative mood, expressing Ryo's experience of mourning and loss.

Myst, the dream project of Rand and Robyn Miller, was another game that received high praise for its atmospheric design. The artfulness of *Myst* invites us to linger and contemplate, like visitors to a museum. *Myst*'s reputation as a "thinking person's game" ultimately

has less to do with its puzzles than with its amber color scheme, its Rembrandt-like play with light and shadows, and its fascination with the textures of the material world.

SOCIAL SPACES

Many people who don't know much about games assume they are socially isolating, that players always play against the computer. Solo play is one mode among many. Computer games originated in arcades before being marketed in the home; many preserve opportunities for spectacular performances best appreciated amongst friends. Playing alone often becomes a way of honing skills which are best enjoyed in shared competition. New interfaces encourage players to dance, beat drums, shake maracas, or manipulate turn tables; these games are called "embarrassment sims" because they create amusing situations for parties. Multiplayer games, such as *Asheron's Call*, are borrowing lessons from urban planners to create opportunities for sociability, becoming the center of vast "virtual communities" and other news games, such as the *Sims*, are encouraging players to actively create content and share it amongst the fan community, designing clothes, objects, and buildings that constitute these virtual worlds. The *Star Wars* multiplayer on-line game sought player advice from the very beginning of the design process. Many next-generation games like *Neverwinter Nights* and *Morrowind* are packaged with powerful, but easy to use editing tools that are expected to be more successful than the game content itself.

As players engage more directly in the design process, the line between gamers and designers begins to dissolve. To fully participate, players will need to learn more about the art of game design. Effective game design can yield spaces that encourage our exploration, provide resources for our struggles for dominance, evoke

powerful emotions, and encourage playfulness and sociability. This art owes much to previous traditions, including those of painting, architecture, and urban design, but it also takes advantages of the unique properties of emerging digital media. Games have always been an art of contested spaces; computer and digital games have pushed that art to a new level of aesthetic accomplishment.

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Figure 1

In early electronic games, players were confined to one space, no more complex than a paper maze or a traditional gameboard. In *Berzerk* the player is trapped in a room surrounded by red gun-toting aliens who attack from every direction. Players learned which walls might serve as shields and which paths were dangerous dead-ends. *Berzerk's* world is hostile and claustrophobic, with little chance of long term survival, since each path led to another room full of aliens. You played until you died, hanging on for dear life against the computer and seeing how high a score you could rack up.

Figure 2

Sid Meier's *Civilization* games depict history as a succession of conflicts or contests over land and other resources. The interface allows players to survey their conquered lands, assess their resources, and suss out the defenses of neighboring territories. This screen, for example, represents the Middle East; its strategic location between the Europe and Asia make it a highly volatile region, much as it remains a contested site in the real world. The top-down maps encourage a global perspective, rather than a focus on individualized experience.

Figure 3

Such interfaces fit within a much longer history of representations of global conquest. Compare *Civilization II* with this 16th century Japanese folding screen which sought to represent the world, its peoples, its cities, and its armies. The screens, created during a period of growing interaction between Europe and Asia, include detailed representations of 28 cities, 8 rulers, the peoples of 42 cultures or countries, and a map showing the geographic relationship between these territories. The Japanese artist sought to link Asia with Europe by representing those cultures together on the right panel, while the peoples of Africa and the Americas were clustered together on the left. A second set of screens offer bird's-eye representations of various capital cities, much as *Civilization II* allows players to drill down from the larger map to get more detailed information about specific locations. Much like Meier's games, these screens convert the lands and peoples of the world into playing pieces in a global game of conquest and colonization.

Figure 4

Half Life creates a diverse array of contested spaces. Here, Freeman needs to enter a door on the other side of this pit. He can only do so by first throwing a grenade across this crevice in order to distract the three-headed monster. Hoping for a more immersive experience, *Half Life* adopts a first person perspective and offers a more adaptive environment; characters react to the sounds he makes and his tools can be repurposed to allow for more creative problem solving.

Figure 5

Blix purposefully evokes the stylization and economy of early games, opting for a falter screen space, a more restrictive palette, and retro

look. As its designer, Eric Zimmerman, explains, "in creating games, the designer is essentially designing a set of limitations on people's behaviors. By designing those limitations, you are literally doing the opposite, opening up possibilities." Players don't control the ball itself; they can simply block or deflect it, rerouting it towards the desired goal.

Figure 6

Inspired by early graphics games, such as *Tetris*, *Snood* lets players fire brightly colored icons at the screen, hoping to match up shapes, and clear the board. Successful players can move to more complex puzzle levels. *Snood* provides little narrative framing, encouraging players to find pleasure in process rather than story, yet the colored shapes are given personalities, expressed through their shifting facial expressions, which add a dash of whimsy.

Figure 7

Shigeru Miyamoto's *Super Mario Brothers* sought to recreate a child's magical engagement with unknown spaces: "When I was a child, I went hiking and found a lake. It was quite a surprise for me to stumble upon it. When I traveled around the country without a map, trying to find my way, stumbling on amazing things as I went, I realized how it felt to go on an adventure like this. The spirit, the state of mind of a kid when he enters a cave alone must be realized in the game. Going in, he must feel the cold of air around him. He must discover a branch off to one side and decide whether to explore it or not. Sometimes he loses his way."

Figure 8

Rayman II is a more recent exploration game which masks its hard

rails through careful design. This ledge encourages visual exploration upward but limits the player's physical movements. As in the early Miyamoto games, the space remains a series of flat surfaces but the cartoonish abstraction of the protagonist helps to justify the stylization of the physical "track" along which he moves. Several additional elements-- butterflies that flit ahead of the protagonist or a waterfall he passes under -- hint at greater depth without significantly impacting game play.

Figure 9

This image from *Morrowind* shows how spatial storytelling can play out on a micro level in the design of specific environments. Players choose among bridges and portals, and each decision has potential implications for situations the character encounters, the skills the character develops, the knowledge they acquire, and ultimately, the shape of their narrative experiences. This misty, cavernous landscape and the focus on natural materials (wood, hide or rock) reflect the genre's roots in J.R.R. Tolkien's *Lord of the Rings* books.

Figure 10

Set in a fully realized, visually distinctive representation of the land of the dead inspired by Mexican folk culture, art deco architecture, and film noir camerawork, *Grim Fandango* stars Manny Calavera, an employee of the Department of the Death, who is on a quest to uncover corruption in the department. Here, Manny visits a street fair, decked out in a double-breasted zoot suit, and talks to a clown. This scene evokes a carnivalesque atmosphere through its flamboyant colors, flowing lines of fabric, and folk art representations of callaveras (skulls).

Figure 11

Deus Ex modeled many of its locations after real world spaces, such as Liberty Island in this early game level, complete with the New York skyline in the distance. A terrorist group has blown the head off of the Statue of Liberty, and is holding a government agent hostage in the statue, a familiar scenario of contested space. As Warren Spector notes, this focus on real spaces set high expectations for players that the game designers struggled to meet.

Figure 12

In *SSX*, the arrows, blowing flags, swooshing sounds, and sweeping camera movements convey snowboarding's speed and motion. Hidden spaces, such as the space beyond this arc or beneath a jump, build and release tension, shaping the rhythm of the action. Game engines frequently exaggerate players' movements and impact on the environment, as the swath of plowed snow in this image reveals.

Figures 13 & 14

In *Black and White*, Peter Molyneux wanted to introduce a stronger focus on choice and consequence. We start the game with a pristine world. The player controls a gigantic creature who affects the environment -- rescuing children, ripping out trees, smashing houses, or building buildings. Through controlling this creature, the player competes with other gods for the devotion of the game's inhabitants. The villagers form moral judgments on the creature's actions based on a combination of deontology (the morality of the action in and of itself) and utility (the effect of the action on the community as a whole). Good moral choices transform the world into a flowering garden. Bad moral choices darken and scar the world -- most

specifically the creature who evolves into a physical reflection of the morality of your choices. We can thus read off the world whether our decisions are virtuous or evil. Such a metaphorical mapping of morality onto the physical environment has its roots in romantic art and literature. The romanticism of *Black and White* is underscored by its simple villagers, who live off of the land in small hunts, and are imbued with a strong sense of innate moral code and communal good.

Figure 15

Inspired by the untamed American wilderness, American romantic painter Thomas Cole's paintings depicted journeys through breathtakingly beautiful and treacherous landscapes. In his "Voyage of Life" series, Cole depicts four stages in human development (childhood, youth, adulthood, old age) in terms of a travel narrative. This painting, depicting adulthood, shows his traveler praying for divine protection as his craft rushes past jagged rocks and gnarled trees towards the approaching rapids. We get only an inviting glimpse of the calmer waters of his final days. The stormy sky and the tempestuous landscape resemble the darker moments in *Black and White*, while the painting depicts a series of challenges or obstacles the protagonist must overcome if he is to enjoy the smooth sailing beyond.

Figure 16

Sacrifice, known for its elemental images, establishes a stark contrast between the cool blue-green water and the fiery red sky. Compared to many of the action games, where the human protagonist dominates the image and remains central at all times, players in *Sacrifice* bounce among angles, having full control of

perspective in leading her wizard and armies of creatures in battle. The human figure, which represents the protagonist, is off-centered, and dwarfed by his environment, suggesting the limited power of mankind in this cosmic struggle.

Figure 17

Brenda Laurel's *Secret Paths* games offered a very different representation of the natural environment. Laurel's company, Purple Moon, wanted to attract girls who she felt were being left behind in the digital revolution. If the boys games encouraged players to conceive of nature as an obstacle, her games depict nature as a healing force. Each Secret Path leads into another enchanted environment, where girls can search for insights into their emotional and social problems.

Figure 18

American McGee's *Alice* builds on our familiarity with other retellings of *Alice in Wonderland*. This nostalgia invites us to linger and explore Alice's richly detailed environments, yet the game's frenetic pace makes this impossible. The game's enclosed cavernous spaces, high toppling walls, and disorienting mazes contribute to our sense of paranoia.

Figure 19

Giants landscape seems otherworldly and the game depends upon a whimsical blend of science fictional and mythic elements (lasers, jet packs, bug-eyed aliens, and monstrous giants). Much as Dali employed shading, depth cues and Renaissance perspective to construct his fantastical environments, the game space conforms to the laws of Earthly physics which gives tangibility to its offbeat

storyline.

Figure 20

In this cityscape from *Shenmue*, the buildings and walls are made of hard, cold surfaces like brick and cement, and painted in muted colors. As Ryo walks along these lonely streets, we hear the distant sounds of dogs barking and cats meowing, as well as the more immediate noise of his footsteps on the slushy pavement. Ryo can duck into the telephone booth in the distance to contact his allies. The kitten wandering the street becomes a mechanism for initiating his love interest, and he will meet an elderly man who trains Ryo in Karate in the park around the corner. Despite rather linear gameplay, what one carries away from *Shenmue* is its overwhelming melancholy and lyrical images.

Figure 21

If many of the other games drew on traditions of landscape painting, this image from *Myst*, is essentially a still life (or at least it is until players begin to manipulate the various objects). Note the richly rendered and contrasting textures of wood, rusty metal, leather, and fabric. The player is encouraged to luxuriate in the play of light on those various surfaces, much as we would in a painting by Rembrandt. We can stop dead and thumb through the leather-bound volumes that clutter the various buildings. Almost every object can provide clues or serve a function in resolving its puzzles.

Figure 22

This *Asheron's Call* interface was designed to encourage a high degree of social interaction, with a strong focus on communication between players, as expressed through the chat window, the radar

which can help locate other players, and the dove icon which communicates the player's aggressive or peaceful moods. This pub is empty - a common occurrence in online worlds. Designers have found that in online worlds, players tend to gather in areas that fulfill particular functions, like shops that sell equipment, fountains that heal life, or crossroads where they can meet other players, rather than in environments that are "designed" for socializing. This game world is approximately the size of Rhode Island and would take nearly a day to run across. *Asheron's Call* contains a wide variety of spaces, ranging from civilized areas, populated cities, strategic outposts, frontier areas, and wilderness areas - each which gain their meaning in part, through players responses to the environment.

Figure 23

The Sims focuses on familiar spaces which look and feel like the homes where the players themselves live. We are thus encouraged to use the simulator for social experimentation, modeling our own interpersonal relationships with friends, lovers, or family members, and testing alternative social strategies for coping with everyday conflicts and tensions. The system is robust enough to enable players to construct many different kinds of domestic arrangements, including the same sex relationship depicted here. At the same time, players never fully control their characters, suggesting possibilities for action or shaping their environment to encourage certain choices, but our instructions are read against preprogrammed values, needs, urges, goals and priorities which are the basic defining traits of these characters.
