

Very Distributed Media Stories: Presence, Time, Imagination

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"...the uncommon vista raises a pleasure in the imagination because it fills the soul with an agreeable surprise, gratifies its curiosity and gives it an idea of which it was not before possessed."

–Addison
The Spectator 1712

1 Introduction

The action of stories is always grounded and contextualized in a specific place and time. For centuries, artists seeking places worthy of representation have found inspiration in both the natural landscape and in man-made surrounds. This inspiration traditionally dwells on the scenic aspects of place and situation, in styles ranging from photorealistic to impressionistic. Sometimes, as in Australian aboriginal "dreamtime maps," the real, the historical, and the spiritual components of a place are simultaneously depicted with equal weightings. Sometimes, as in road maps and contour maps, super-simplified representations are enhanced with integrated or overlaid technical measurements; constructed artifacts, such as roads and airports, share equal billing with natural landmarks, such as lakes and rivers. The scale, focus, point-of-view, and narrative content of landscapes are chosen and manipulated to suit the artist's (and the audience's) specific purposes: they embody affordances which exert great influence over a work's final use.

When we view the image of a broad, sweeping vista, we seldom notice every leaf on every tree: indeed, artists seldom provide us with this level of detail. Instead, our attention is drawn through and across a collection of landmarks, consciously and unconsciously brought together to serve as sensually satisfying iconic and symbolic representations of a more complex whole. This notion of bringing together and arranging selected elements into an integrated environment – customized and personalized for specific uses – has profound relevance to the digital systems of tomorrow.

2 Touchstones from the Past

In the 20th century, artists have increasingly moved away from strict representations of what they see in the world to formal and informal explorations of form and space. Many artists have challenged the limits of art as object by extending expression into the natural or man-made surround; often, fanciful landscape is used to proffer metaphors for engagement and imagination.

Towards the end of his life, Matisse – no longer able to hold a paintbrush – developed a technique by which he could produce flat paper cut-outs. By pasting these flat elements onto his hotel walls, Matisse was able to explore anew luminous dimensions of light in space. In these explorations, the artist inverts the objectness of sculpture and negates the boundaries of painting. In the flat frieze of bathers swimming in a band around his dining room, Matisse created an immersive space which is no less substantial and emotionally charged than his earlier works on canvas. The experience of actually dining in this customized and privileged environment – individually and collectively – is in itself a transformation of the familiar into a joyous, ethereal, unfamiliar collision of art and life.

Marcel Duchamp's "Etant Donnes" – the last major work of his life – at first appears to be a large, ramshackle wooden door. On closer examination, one discovers a peep-hole through which an allegorical 3D tableau (involving a nude, a waterfall, and a gas burner) is visible. Duchamp's widow has steadfastly upheld his request that no-one be allowed to photograph or otherwise reproduce this voyeuristic vision; only those who physically travel to the museum and peek through the door cracks are rewarded. Even then, the visitor meets "Etant Donne" on a reticent footing: the piece is situated at the end of a corridor, and look as if workmen may be doing construction behind it; to peer through cracks at a spectacular nude, while other people watch you, seems a bit tawdry. The limited views of a 3D scene present a shifting dynamic where information is selectively concealed or revealed.

In the early 70s, beleaguered by minimalism and America's struggle with their values relative to the environment, artists such as Michael Heizer and Robert Smithson created mystical, monumental Earth Art. These enormous sculptural reworkings of the landscape ranged from huge gouges in the earth, to enormous decorative patterns of ecological flows, to fences across grand grazing terrains. Over time, these earthworks would erode and decay until they became indistinguishable from the natural surround.

These and other examples from the past provide a relevant touchstone for modern makers, particularly those who wish to create their own CD-ROMs, immersive interactive environments, or "virtual reality" installations.

3 Art in Transition

Whatever its wellspring, the artistic imagination is shaped by skills, exposure to pre-existing conventions, the available materials, and worldly beliefs. In this

sense, the work is never precisely as we imagined; rather, it is a running compromise which mediates that inner thought with the outer reality of contemporary ideas, available technology, practical collaborations, and expressive powers of creative artists. Today's digital technology is particularly empowering; unlike the passive, pastoral beauty of painted landscapes, digital environments are computational entities seething with activity, change, and movement. The hardware / software duality of these creations offers new forms of dynamic control over both the physical and metaphysical aspects of space, time, form, and experience. The marriage of content with production and delivery systems extends far beyond the technological; as we gain more experience with these systems, new sets of aesthetics, expectations, and challenges are emerging.

A typical "interactive multimedia" installation ties together devices which sense and track human activity; powerful computational engines; graphical displays; and, increasingly, high-capacity communications networks which interconnect people and resources across vast distances. At the core of these systems is some combination of software and hardware which attempts to glean the desires and motivations of the participant audience, remap them to the intentions of the primary author, and respond in meaningful ways. Many of these exploratory systems empower the audience to enter and traverse vast, sophisticated information landscapes via a "driving" or "flying" metaphor; many offer constructionist environments which invite the audience to add their own stories, objects, and other manifestations of desire and personality to the surround. The usefulness and expressive power of these systems depends not only on the technology – which is often "invisible" to the audience – but also on the choice of overarching metaphor which conjoins and energizes the parts, relating them to specific story content.

Today, we are no longer required to sit in front of a small computer screen, typing, pointing, and clicking our way through every kind of locally-stored content. Instead, we can use our voice, gaze, gesture, and body motion – whatever expressive form is most appropriate – to communicate our desires and intentions to the computational engine. These engines can reach across vast networks to find whatever material is needed, bring it back, and massage it on-the-fly to form personalized, customized presentations. Modern sensing devices and displays range from the familiar personal computer to large-scale, immersive environments of superb quality. A complex series of transactions underlies this process of interface, information retrieval, and presentation; as interactive systems rise to dominance, the problems and opportunities presented by these transactions – drawing from a broad base of networked resources owned by others – must ultimately be addressed by e-commerce.

4 Kinesics, Kinesthesia, and the Cityscape

In the physical world, natural vistas engage the human eye, stimulate the brain, and generate emotional responses such as joy, anxiety, or fear. These experiences

also produce a degree of kinesthesia: the body's instinctive awareness and deep understanding of how it is moving through space.

Film directors as well as makers of virtual reality scenarios seek to create transformational imagery which will spark a sensational journey through a constructed or simulated reality. Cinema captures or synthetically provides many sensory aspects of genuine body motion and audiovisual perception, but fails to represent others (such as muscle fatigue). As a result, the empathetic kinesthesia of film has proven to be extremely elusive and transitory; there is a limit to what the audience can experience emotionally and intellectually as they sit at the edge of the frame. By experimenting with lens-based recording technology, multilayered effects, and a variety of story elements, cinema presents an illusion of a world which offers sufficient cues and clues to be interpreted as "real." More recent experiments with remote sensing devices, theme-park "thrill rides," networked communities, constructionist environments, and haptic input/output devices have greatly expanded the modern experience-builder's toolkit.

In cinema, the perceiver is transported into a manufactured reality which combines representations of space or landscape with the actions of seemingly human characters. This reality must be conceived in the imagination of the film's creators before it can be realized for the mind and heart of the spectator. The attachment of any director to a particular landscape – be it the desert in Antonioni's "The Passenger," the futuristic city and under-city of Fritz Lang's "Metropolis," or Ruttmann's poetic "Berlin: Symphony of a Great City" – is a function of personal aesthetic and symbolic intention. The "holy grail" of cinematography may well be the realization of satisfying kinesthetic effects as we glide over "Blade Runner's" hyperindustrialized Los Angeles or descend into the deep caverns of Batman's ultra-gothic Gotham City. Note that all of these examples draw upon intellectual properties subject to licensing fees for use: however, the rules and models of commerce governing the on-line delivery of this art remain substantially undefined.

5 The Landscape Transformed

Lured by the potential of a near infinite progression of information, artists are constructing digital environments which reposition the perceiver within the synthetic landscape of the story frame itself. Awarded agency and a role, the Arthur-like explorer sets out on a quest for adventure and knowledge. Positioned at the center of a real-time dynamic display, the perceiver navigates a landscape of choice in which information – text, HTML pages, images, sound, movies, or millions of polygons – is continuously rendered according to explicit rules to move in synch with the participant's commands.

In 1993-1994, Muriel Cooper, Suguru Ishizaki, and David Small of MIT's Visual Language Workshop designed an "Information Landscape" in which local information (such as news) was situated on a topological map of the world. As the explorer pursued particular information, they found themselves hurtling across a vast, familiar landscape, or zooming down into an almost infinite well

of detail. In this work, the illusion of driving and flying are produced through the smooth scaling of the information. The perceiver's body is at rest but, as she comes to understand the metaphor of motion, her brain makes the analogy to a phenomenon which is well known in our 20th century world.

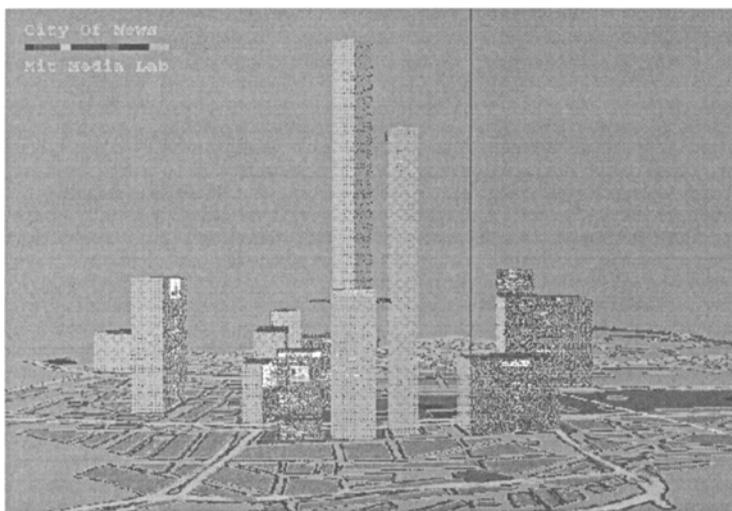


Fig. 1. Flavia Sparacino's "City of News"

What new possibilities for navigational choice are offered when a system is able to parse full-body motion and gestures? Recently, Flavia Sparacino has created the "City of News," a prototype 3D information browser which uses human gesture as the navigational input. "City of News" explores behavioral information space in which HTML pages are mapped onto a familiar urban landscape – a form of "memory palace" where the location of particular types of information remains constant, but the specific content is forever changing as fresh data feeds in from the Internet. Still in development, this work raises interesting questions about organizational memory structures and the economics of information space. Over the past year, Sparacino has demonstrated "City of News" in a desktop environment, in a small room-sized environment, and in a larger space which could accommodate floor and wall projection surfaces. As this environment develops, Sparacino will consider how two or more people might build and share such a personal information landscape.

6 Landscape as Harbinger of Story Form

Stories help us to make sense of the chaotic world around us. They are a means – perhaps the principal human cognitive means – by which we select, interpret, reshape, and share our experiences with others. In order to evolve audiovisual

stories in which the participant-viewer has significant agency, the artist seeks to conjoin story materials with relevant aspects of real-world experience. Sets, props, settings, maps, characters, and "plot points" are just a few of the story elements which can be equipped with useful "handles" which allow the audience to exert control. As these computer-assisted stories mature – just as cinema has – they will in turn serve as metaphoric structures against which we can measure the real world.

Today's networking technology allows us to bring an audience "together" without requiring them to be physically present in the same place at the same time: we call this art form "very distributed story." Regardless of its underlying spatio-temporal structure, the participant audience always perceives the playout of story as a linear experience. Thus, "real time" is a crucial controller of the audience's perceptions of "story time."

In networked communications, the passing-on of information from one person to the next is characterized by time delays and differences in interpretation: what effect does this have on the communal experience of story? Long-term story structures such as suspense, expectation, and surprise depend on the linear, sequential revelation of knowledge over time. Context and the "ticking clock" reveal absolute knowledge of a story situation – but only after a significant period of involvement with the narrative.

Beyond its consequential responses to the remotely-sensed desires and commands of its audience, very distributed story must embark upon a metaphysics of landscape. This is the focus of the "Happenstance" system, currently under development by Brian Bradley, another of my graduate students at MIT.

"Happenstance" is flexible storytelling testbed which expands the traditional literary and theatrical notions of Place and Situation to accommodate interactive, on-the-fly story construction. Important aspects of story content and context are made visible, tangible, and manipulable by systematically couching them within the metaphors of ecology, geology, and weather. Information-rich environments become conceptual landscapes which grow, change, and evolve over time and through use. Current information follows a natural cycle modeled after the Earth's water cycle. Older information, history, and complex conceptual constructs – built up by the flow of data over time – are manifested in the rock and soil cycles. Directed inquiries, explorations of theory, and activities associated with the audience's personal interests are captured and reflected by plant growth. As a result, information itself is imbued with sets of systemic, semi-autonomous behaviors which allow it to move and act intelligently within the story world or other navigable information spaces in ways which are neither tightly scripted nor random.

In Bradley's work, landscape and the broad forces of weather which sweep across it are the carriers of information as well as scenic elements: they are bound by the rules, cycles, and temporal behavior of ecological systems. Landscape, context, and new information flowing through the system work together to provide a "stage" where story action can take place.

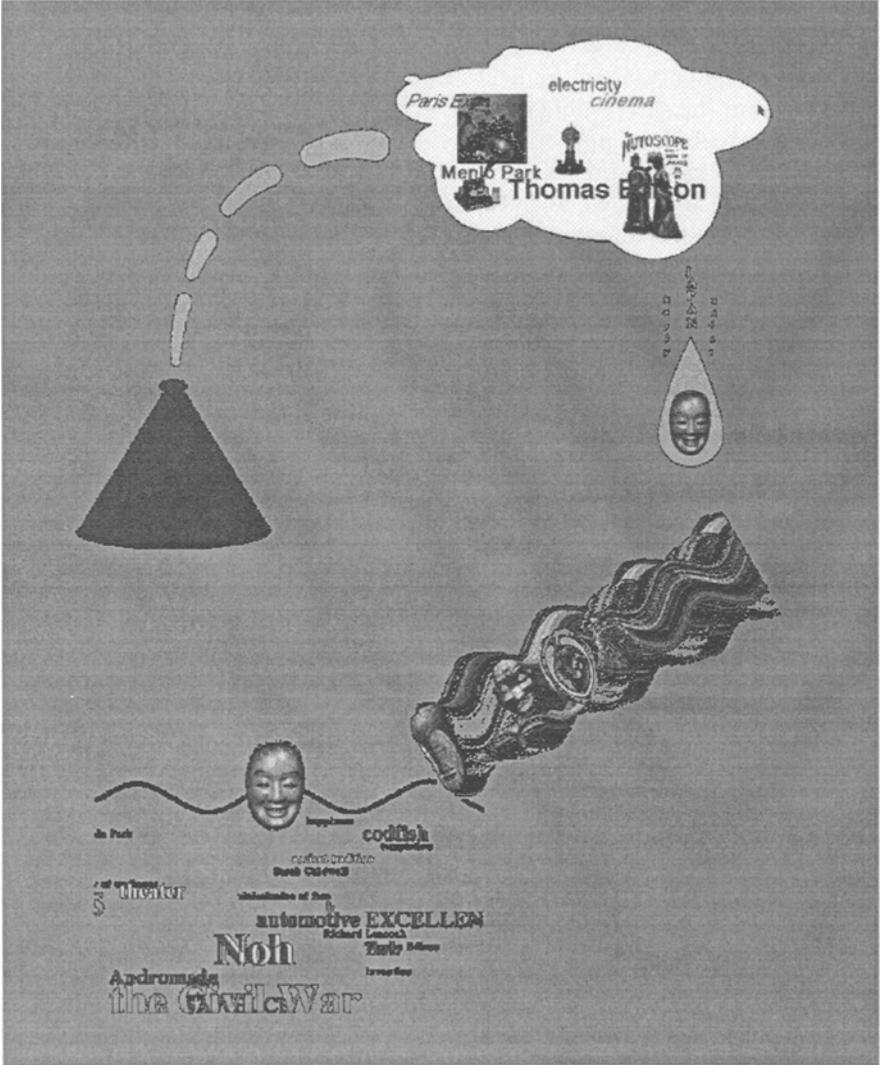


Fig. 2. The information "water cycle" of Brian Bardley's "Happenseance"

As precious computational resources – known in the jargon as "real estate" – meet specialized, continuous Information Landscapes, new and intuitive forms of navigation and content selection are beginning to emerge. The symbology of landscapes built by the gathering-together of scattered resources must hook seamlessly into a personalized, customizable transactional model capable of resolving higher-level ambiguities and vaguenesses. The movement of information through these story spaces must have consequence over time, just as the interactions of the participant audience must always elicit prompt and meaningful responses from the storytelling system.

As narrative finds its appropriate form in immersive electronic environments, the traditional classification of story – myth, history, satire, tragedy, comedy – must be extended to include hybridized forms which reflect the moment-to-moment desires and concerns of the audience. Rather than strictly mapping events to prototypical story action, we will evolve new story forms based on navigation of choice, constrained and guided by authorial will. Hopefully, in time and with practice, these metaphoric structures and maps can be – as Addison foretold – "as pleasing to the Fancy as the Speculations of Eternity or Infinitude are to the Understanding."