

FACING PERCEPTUAL SHIFTS

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"Figuratively Speaking," a VR world, introduces Cubist figures from Dolinsky's paintings to a newfound dimensionality in virtuality where they establish both their personalities and the landscape. VR sets up a subversive confrontation by using a range of perceptual stimuli (visual, auditory, kinesthetic...) to exploit the artistic experience. Painting extends VR and the perceptual shift momentarily usurps reality.



Fig 1. Figuratively Speaking, © 2011 Margaret Dolinsky, VR World, Photo: Edward J. Dambik



Fig 2. Figuratively Speaking, © 2011 Margaret Dolinsky, VR World, Photo: Edward J. Dambik



Fig 3. Figuratively Speaking, © 2011 Margaret Dolinsky, gouache painting and 3D modeling are the inspiration for VR worlds

Introduction

The complexity of creating artwork for virtual reality theaters such as the CAVE Automatic Environment offers artists a multifarious palette that only begins with hardware and software. The aesthetics of an experience requires creating a plastic environment that ignites the imagination in order to inveigle the visitor and simultaneously engages the visitor. Virtual worlds immerse visitors with a range of perceptual stimuli (visual, auditory, kinesthetic...) that can be finessed through the artistic process. By setting up subversive confrontation between the visitors and the worlds in terms of such techniques as perspective, illusion and projections, a perceptual shift can occur that momentarily usurps ordinary reality. "Figuratively Speaking," a VR environment for the CAVE, is based on original watercolors of abstract figures whose faces, for the most part, are their bodies and concurrently compose the landscape. This deliberately confounds the environment to engage the visitor in a face-to-face dialogue with particularity and personality.

Facing perceptual shifts

There has been a historical tradition in art towards altering perception. My work in virtual environments employs dynamic imagery to heighten awareness, promoting what I call a "perceptual shift" for the visitor. A perceptual shift is the type of cognitive event of having experienced something extra-marginal, on the boundaries of normal awareness, outside of conditioned attenuation. [1] Perceptual shifts are often provoked by artwork such as *trompe l'oeil*, Cubism, Cornell boxes, labyrinth gardens, and Brecht's political theater. These devices for wonderment have a magical quality that requires a specific interaction unique to the particular device and its functions. Once the participant realizes his or her role within that interaction relationship, possibilities open for perceptual shifts and cognitive events. In my own work, I am not attempting to shape emotion in particular, but I do hope to shape perceptual possibilities within immersive environments.

Image making

I keep a sketchbook next to me at all times. It is especially critical in the morning. I reach for it before I am fully awake. I do not use an alarm clock, radio or other device. I avoid sounds and thoughts that define the day. I simply tell myself before I fall asleep what time I need to wake up. I sketch before I can articulate words, as if still captured in a dream state. It is during these hypnagogic moments that images form. Moreover, from the images, I recognize a sense of being. Rather than verbiage, motion becomes evocative, creating patterns of lines and shadows. The sketches come charging from the movements of my forearm that is channeling notations of memories and dreams that assemble themselves onto a surface. They are harbingers of narratives that temper and toughen consciousness and build gateways towards analogies. The sketchbooks are diaries, daily blogs in visual form.

Sketching impels me and inspires my paintings that inspire my virtual reality. At times, a sketch leaps forward, demanding further enhancement and calling to be fortified with color. I rarely understand the images before I paint them. I seem to know, without any calculated thought, which one needs attention. The process of applying color is seemingly ignited by an enticing song, as if sung by sirens. I execute the process of painting with mesmerizing fascination. I guide the brush to conspire with the surface. I counsel color onto a path where ultimately it is suspended from further voyage. The colors adhere to the plane, mixing with light, creating a surface, maintaining shape and decorum. As the culminations of my forces whip the brush's lashings into shape, the colors and shapes acquire integrity as entity. Color adds a dimensionality to the dreamt up image, provides a new parallel of existence, and extends my visual understanding of my process. Color establishes the robustness of the characters. It makes them whimsical, light-hearted yet at times, frightening.

The resultant image, a frozen structural moment finalized in time, becomes a world of contemplation that reorganizes itself as often as I look at it. The images begin to define a virtual environment and extend towards three dimensions. I create them anew in 3D computer modeling software. As the characters cultivate their relationships with one another, their prevailing forces energize to the real world and inculcate me with further ideas.

3D Virtual Worlds

The complexity of creating artwork for interactive stereoscopic cinema or virtual environments offers me a multifarious palette that only begins with hardware and software decisions. I consider my art images in terms of the connections they offer the visitor. The screens open to an infinite space that must be planned out as if it were real estate that is not necessarily grounded. The space offers multi-dimensional, gravity defying exploration with sensors triggering events. Illusion is presence. The 3D presence, completely illusory, is complex. It is visible through the light from the projectors coded in data. Each shape object model geographically maps the xyz Cartesian coordinate system and articulates a corresponding texture that maps the UVW components. They are co-located in the environment set with sensors for interaction. The hardware and software limitation mandates each facet of the artistic development with its own parameters and criterions. I must be vigilant. I am here for the experience dictated by my sketches.

Aesthetics of experience

The aesthetics of a real time animation experience ignites my imagination. I inveigle the visitor first through brightly colored and odd shapes depicted from my paintings. These shapes simultaneously engage the visitor, as they comprise the unusual characters to meet. Stepping into my real time interactive animation, the world is filled with the sights and sounds from my imagination. The environment navigates between my externalized imagery and my internalized thoughts. Small areas of the environment are confined to intensive interaction. The free navigation is halted by specific objects that manipulate sound. The juxtaposition of these events allows for free roaming thoughts with intermittent deliberations and activity.

Visual Perception

Virtual worlds are privileged by visual imagery. In "Figuratively Speaking," the original paintings dictate the aesthetic that guides the visitors through the experience. The paintings establish a 2D visual aesthetic that is extended to become a 3D space. The responsiveness of the visitors is encouraged through a range of perceptual stimuli including visual components, auditory design, and attention to kinesthetic movement. Rudolf Arnheim explains, "Visual perception is visual thinking... No thought processes seem to exist that cannot be found to operate, at least in principle, in perception."^[ii] The unique visual milieu energizes the experience. In order to navigate, one must identify the seemingly unusual imagery and make connections with it. In order to make sense of it and to make decisions, one suspends disbelief and interacts with art.

I design characters that look like heads. 3D allows them to move awkwardly, stare gracelessly and speak gawkily. They are simultaneously amusing and frightening. It allows me to establish an interactive relationship with a world I would otherwise only know in 2D (on paper and computer screens). I know the characters multi-dimensionally as a manifestation in 3D graphics or in rapid prototyping. I feel privileged to be able to extend the characters' conversation with me to others. I carefully place them to facilitate way-finding by creating visual choices or preferences for the visitor. The characters peak the visitors' interest and determine their next movements. I ignite attention through shape, size, color and brightness of the spatial configuration with the other objects that comprise the environment. This active selection and visual thinking creates a formula to design visual drama in the environment. Instead of drop down menus or folders with names on them, the objects are the way to navigating understanding.

The abstract imagery is reminiscent of the likes of Chagall, Klee and Picasso's cubism. The bright abstract shapes direct the visitor to explore particular paths. The fundamental elements of the imagery such as size, color, shape, and brightness can attract or detract the visitor to and from a route. These elements influence how the visitors' body moves along the path as well. At one point, all movement has to stop while at another it is slow in order to see what is unfolding nearby and in another, one cannot move fast enough to catch up with the moving objects, such as the boats in the water. My environmental design causes visitors to move to the side, lurch, and crouch and bend in order to anticipate a movement, face a situation or provoke events.

The visitors are also enveloped through the use of sound. The world is enhanced by sound that lifts visitors and carries them through the experience. The background audio is an ambient sound composition by Michael Drews and performed by the band, Big Robot.^[iii] The foreground sounds, heard when the events are triggered are composed by sound artist Rachel Weaver.^[iv] As visitors are listening, sound indicates where attention should be focused. Sound peaks thoughts and manipulates emotions. Sound provides context through acoustics and psychoacoustics. The malleability of the environment relies on the influence audio creates. Begault describes 3D sound systems as having four acoustic simulations: representation, replication, transmutation and creation.^[v] Creation is a completely unknown auditory

experience. This fourth simulation, creation, is what I find effective for my abstract environments to enliven the mood and engage the visitor in a theatrical art performance.

The design of audio, imagery and kinesthetics work in tandem to create a higher degree of temporal resolution and enhance the channel of communication between the visitors and the art.

Perceptual shifts

I construct pointers to perceptual shifts as the formal structure in my virtual worlds. I aim to capture those perceptual moments that are often lost because they are extra-marginal, outside the bounds of ordinary awareness. These moments are significant when they are initially recognized and lead the way towards integration of one with the surround. The environment must affect the visitor. Each visual element, auditory cue and kinesthetic activity represents a moment of recognition. These elements may act as a doorway, stairwell or tunnel that requires investigation. I establish the possibility for narrative by transforming the structure and architecture of the space into a series of visual and metaphorical guides for the participant. The environment is the navigational structure that ignites perceptual shifts and indicates the possibilities for interaction and, in turn, guides the overall experience.

The perceptual shift is established in terms of cognition, emotion and kinesthetics. The figures build a dynamic visual vocabulary. Combined with the awareness of time, the worlds are moving paintings. The visitors stand in the perceptual foundation of paintings that manifest experiential space. What is significant about creating virtual worlds is that it is the first redefinition of perspective since the Renaissance.^[vi] I extend this mathematical perspective with a perceptual shift in dynamics that allows visitors to face an unknown and synthesize to their present sense of knowing.

Figuratively Speaking

“Figuratively Speaking” is a virtual environment that establishes a ritualistic interaction of recognition, listening and attending. It is inspired from a series of hynagogic paintings. The paintings feature portraits that are simultaneously faces and figurative characters. The composition of the painting is in a six-panel grid formation. The painting allows the eyes to navigate the images in a sequential fashion, much like abstract comics. The virtual environment allows the body to navigate in a nonlinear fashion, similar to a stream of consciousness movement. The portraits provides affordances for the VR environment to establish methods for way finding.^[vii] The faces are portraits, figures and landscape elements.

Some of the perceptual context of this work looks at the research of Reber et al who suggest that aesthetic experience is a function the perceiver's processing dynamics. "The more fluently the perceiver can process an object, the more positive is his or her aesthetic response... Finally, the impact of fluency is moderated by expectation and attribution."[\[viii\]](#) The experience of searching is governed by the aesthetics and the emotional tones of the faces/figures. Together, context and conceptualism, evokes exploration, recognition and discovery. The face is a metaphor for identity. The face represents a kind of knowing the self, determining where one is in relation to the other. The face also represents a kind of knowing of the other, determining where one is in relation to place and path. The face is also body and parts of the body makes up the landscape. Therefore, the face is also the grounding force. The visitor is immersed in a subversive confrontation with face and identification. This deliberately confounds the environment to engage the visitor in a face-to-face dialogue with particularity and personality. While navigating, the visitor constructs a narrative and the visual conversation moves between the artist, the visitor, and the artwork.[\[ix\]](#)

Conclusion

My virtual environments seek to create perceptual shifts by setting up subversive confrontations between the visitors and the world. Visual design techniques for virtual environments such as perspective, illusion and projections are only the beginning of creating experience. My worlds are inspired by abstract drawings that are painted and reconfigured in 3D. In "Figuratively Speaking" the adventure is established through the use of abstract portraiture. The visitor must reckon the moment by coming face to face with her reality.

The forces from the paintings will inseminate a virtual world where the objective is that over time and by navigating through space, visitors produce their own momentary narratives, similar to my recognitions of my own perceptual shifts. The visitor navigates, explores and contemplates the environment, as if they too can recognize an extra-marginal moment in time.

"Figuratively Speaking" is an artwork that realizes 2D painting as the foundation for a virtual environment aesthetic. The vibrant colors and unique forms energy the environment and illustrate the dynamic playfulness of relationships between faces and characters, real and virtual. The change in scale and repetition of forms encourage exploration of the figures as both characters and as landscape. Beyond mere viewing of a frozen image, visitors can move and explore towards an aesthetic experience.

References and Notes:

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