

## *Swimming in Time:*

*Performing Programs, Mutable Movies. Notes on a Process in Progress*

**Toni Dove**

*Why can't I be you?*  
--The Cure

### EXT. OPENING SEQUENCE

The camera pans over a landscape in the future. Fragments of voices, conversations, and events - fleeting, dark - it is suggestive rather than explicit. 3D simulations mixed with footage of junk yards create a world populated by shadowy figures. England, 2099, a world of artificial surfaces where memory spans only a person's experience - there is no recorded history. This culture of consumption literally floats on islands of garbage, saving anything is punishable by law.

POV sequence: someone is navigating through the fringe of an urban center. This sector's function is to compact trash, lifting the island above sea level as ice melts and water rises on the planet. He is working his way through a black-market subculture of barter and salvage - there are mountains of refuse, highly organized districts of dealers based on geography and chronology. The Informal Sector. A humming, whining sound like a siren and its effect on the inhabitants indicate the presence of a regulatory body.

This district is for dealers in objects from the early twentieth century. The someone in POV is searching for a particular dealer - a specialist in artifacts from the early part of the 20th century in New York City. Artifacts from what is now a dark continent.

POV  
I'm looking for Zed.

DEALER 1  
Haven't seen him.

POV  
Have you seen Zed?

DEALER 2  
He's moving around - they might be watching him.

POV  
Is Zed around?

DEALER 3

You're not with the Reg?

POV

No.

DEALER 3

(Looks at him  
carefully)

Yeah, I guess not. Maybe over in  
the 3rd quad.

INT. SPECTROPIA'S STUDIO -- CONTINUOUS

CUT TO:

A dimly lit scene of some vast dark interior architecture in a place reminiscent of the late 18th century, but strange, as if seen through a looking glass. It's filled with faded, broken, objects and oddly re-purposed computer equipment. Flashing monitors are networked for some complex function and glowing transparent bubbles worn like hoop skirts by tiny figures float over the monitors. There is tickertape-like text around the bubbles' centers.

Occasionally they burst and new ones rise from the monitors. They are IPO avatars that represent the birth and death of ventures. Mixed with the monitors are some strange objects that seem to have smoke masses that hover above them. Images alternate between the monitors and the smoke masses. Faces appear, morphing and unstable, before settling into a single recognizable face. The faces talk - sometimes a sales pitch, sometimes a warning. One screen offers access to stocks on new ventures - "bubble deals" - others speak about meeting consumer quotas. They are clearly customized to the owner of the system.

Spectropia, a self-taught "archeologist" in her early twenties, is bent over a cluttered work table. She is addicted to collecting and classifying discarded artifacts from the past - a dangerous activity. She seems to live in an environment devoid of human presence. A glass globe containing a branch and a butterfly is the only living thing in the studio. There is a grubby abandoned feeling about her and the place she inhabits - an atmosphere of effort and loss. She is searching for something. She is obsessed.

FADE IN: Wide aerial shot pans over the studio. Spectropia looks tiny, surrounded by a vast array of carefully arranged objects - a sea of junk. She is dressed in hybrid clothing based on 18th century mens-wear and women's undergarments partially constructed of transparent bags, like pockets, filled with salvage junk.

CLOSE-UPS: of family related objects tell a story. Old photographs of a young man and woman and of the man with a child and then older, haggard or ill, with a teenage girl -

Spectropia. The face of the man has appeared in an artificial or simulated form on the monitors in the studio. Objects and yellowed stock certificates from the XYZ Fund are neatly stacked.

She is bent over a table lost in the organization of what looks like meticulously labeled and rigorously laid out garbage - broken fragments, unrecognizable artifacts. This sea of obsessively organized objects stretches out before her - her project. She probably lines up her knife and fork at precise angles when she eats, if she uses anything so pedestrian as a knife and fork for utensils. Alongside the detritus are computer screens and family memorabilia. One of the monitors speaks a warning:

MONITOR

Spectropia! You have failed to  
meet this week's consumer quota.  
Are you saving?

She looks up, startled...

I'm standing in front of a full-scale movie screen in a pool of dim light; I'm one of two players performing an interactive movie entitled *Spectropia* (the title means a staging platform for ghosts). The images of my character, Spectropia, are glittering and moving on the screen. At the point we have entered the story, the movie becomes unfamiliar - it behaves strangely. A movement of my arm causes my character's body to move. Faster motion from my body speeds up her body - depending on where I move she will move - forward or backward - if my movements speed up so will hers - she reacts to me, I react to her. On the floor there are several buttons. If I step on the one closest to the screen, the images on the screen dissolve to a new POV (point of view). I'm now in the eyes of my character, in her POV. The second button moves me out of her body into the action, trailing the action, re-animating the interaction between characters. The third button moves me out of the action into the physical space of the narrative - my movement lets me pan around the space - look around. My body movements are also altering the soundtrack, stretching and compressing suspense, causing changes in sound from the mise-en-scene as I move through the cinematic space. The second player stands next to me in front of the screen. His character, the Duck, we met earlier in POV navigating the salvage yards of the future. He has just arrived in Spectropia's studio in the story. If the Duck's player standing next to me moves and the sum of his movement is greater than mine, the images will dissolve to the Duck's POV, his slant on the action, or his view of the space. There is a fourth button - it's for memory, a flashback button, but we'll get to that later.

## Story Synopsis

The story opens in the future where Spectropia, a young woman in her twenties, lives in the salvage district of an urban center known as the Informal Sector. Her companion, a cyborg creature called the Duck, (part human and part wireless robot) runs a black market business in retro objects - their livelihood. The Duck is a babysitter bot, in loco parentis, programmed by Spectropia's father, who disappeared in time while searching for a lost inheritance. Using a machine of her own invention to research the past and find her father, Spectropia scans garbage and translates it into lifelike simulations she can enter that are populated by characters from the past who respond to her voice and movement. When her machine short circuits during her search, William, a man from New York City 1931, is trapped in her studio as a black and white ghost. The glitch occurs again and Spectropia is transported to NYC 1931, where she finds herself in the body of another woman - Verna de Mott - an amateur sleuth. Inhabiting Verna's body, she helps William to solve a mystery in 1931 while attempting to find her father and manage the time travel problems of her machine.

## Presentness as Place - Being In Your Body

So...where am I? What place is this? Motion connects my body's perceptual apparatus to media authored to a program that allows me to navigate narrative space - in other words, video and sound are designed in dynamic layers that my movement activates to create a sense of immersion. I'm both in my body and in the screen - or in a character on the screen. I'm a ghost in the movie, a telepresent agency - my traces are left on the screen. Cooperating with the other player in the piece allows our actions to make the story unfold. The program is designed to mimic aspects of the physicality of perception - the way we feel ourselves in the present - in our bodies - in space - in time. It's happening not only through the actual physical movement of the players, but in the design of the media, authored to the behaviors of the program, coming back at the players, at the audience watching players and screen. This is an altered form of cinema - not quite the same as the primarily visually triggered cinema we are familiar with. This experience is continuous in a different way, designed to wrap around you. For example: you are in the eyes of your character and you hear the voice inside her head. You are following the action of the scene and your body motion is re-animating video - altering speed and direction - in a way that makes physical or material the relationships between the characters - their hesitations, repetitions of motion, withdrawals. You are looking around the space of the mise-en-scene, panning, speeding up, slowing down. The media is authored to a player's relationship to the interiority of the character, the relationship between characters and the relationship to the physical space of the narrative. This will transfer to an audience watching as well, a triangulation in both real space and in virtual space - characters on screen, players, and viewers. These layers combine to create an immersive media experience tied to the motion and the perceptual apparatus of the players or the larger audience watching both media and players.

It is what I would call the 'affect' of responsive media - a vividness - this pull of the physical sensation of the body in movement, in space, in time, extended into the screen - like a libidinal charge without object. The sensual experience of the mise-en-scene in motion manifesting in the body forms a parallel, corporal reality to the unfolding story. There is a disrupting of the familiar syntax of film using responsive techniques that challenge concepts of reception in viewers and alter the experience of temporal shape in narrative. The embodied interface (in this case motion sensing) engages with a dynamic, dimensional narrative structure. This is a re-seeing of narrative through an analysis of perception and a re-casting of cinema as a spatialized, embodied experience. In other words, we perceive our environment and each other based on an assembly of physical sensations cued by environmental triggers. How can this be articulated in interesting ways to create virtual space?

### **Interface: The Feedback Loop - Body and Media**

The connection between body and media is critical to immersive experience. The player's action causes movement in a character's body (ie. triggers response in the media). But this is only the beginning of the story. A gesture, a movement, is too discrete an action to really describe what is happening. It's a continuous flow that loops. As the experience unfolds the relationship between body and media ceases to be a simple cause and effect - motion triggers, then media responds and body mirrors media and so on. After a time, gesture is lost as a discrete entity and a feedback loop exists between body and media that produces a perceptual continuum - a flow.

Flow, as the architecture of media experience, is qualitatively different from the cut of film. The cut engages you visually, it allows you to look 'at' the screen. If there is no cut, or cuts are not the key aspect of a language that describes space, but rather a sense of continuousness is dominant designed to mimic your visual field, then your perceptual apparatus is tied into the flow of images. This is a corporal experience - it engages your whole sensorium. Which is not to say that the visual architecture of film does not - the visual is never only visual, it involves an entire spectrum of bodily and perceptual response. Many filmmakers working at the edges of cinema have experimented with phenomena similar to what I am discussing here. In this case, the players on the stage through their actions, their motion, alter the traditional experience of film by triggering a real-time response in the media on the screen. The media is designed to segue with the body's perceptual orientation in space and is received as a continuous flow. In this context, the cut can become a jolt. It's an impossibility in the flow of perception.

The movement from cut to continuum is significant then, because flow ties the body to image in an entirely physical way. You are no longer outside looking at an image, you are inside the image - or

more precisely, the images are inside you. This is where the body takes in, leaves out, organizes material to create an experience - as if you are the editor body surfing through the fragments and pieces of image and sound that constitute the movie. The experience occurs in the space between the body and the screen, but the body is where all the pieces come together. The cut (montage and rupture) gives way to the continuum, the pulse or flow of data, image, and sound that forms a feedback loop with the body. Participants are physically and dynamically organizing information, and this becomes an active position. The body is the site of coherence— it's where the whole thing happens. Maybe we're not just couch potatoes after all.

## **The Structure of Attention**

I'd like to take a moment now and look at how we pay attention, or perhaps I should say at the conventions that identify paying attention. "Physicalizing" virtual space with the body in motion suggests the need to re-examine not only how we define the body's boundaries (altered and extended through experiences of telepresent agency), but also the structures of attention that have arisen as a result of passive viewing. The definition of attention as a single stream, a focused, aimed experience that is cerebral, localized and specific may be turned on its ear by the surfing repetitions of responsive interface. This repetition of physical action, the sense of attention being almost the background or field that allows another form of experience to surface is similar to the way one's mind wanders while driving a car – the almost invisible repetitive actions release the mind. These repetitions of action form a trance-like experience and so it becomes useful to look at trance, meditation, inattention, boredom and hypnagogic states in relationship to how experience is constructed in responsive media space. It is notable that the word "surfing" has become so common in relation to Web experience – this idea of coasting across data and information in a fluid and malleable way driven by the user has an experiential relationship to swimming. This is a different form of attention – a kind of sustained tension which creates a space for reception; vertical eruptions in a horizontal field of time. The structure becomes one in which information leaches up through layers or strata to create meaning and is a departure from the temporal linear sequence of conventional plot. I'm interested in working with a form that I would call 'coherent channel surfing' - organizing and structuring the random movements of data navigation that have become so familiar to all of us and using them to design specific narrative databases.

## **Is Interactive Always Participatory? Authoring to the Senses**

So what about this tyranny of motion? Is it necessary to jump around during the whole movie – do I always need to be "doing" something? What if I just want to watch and be involved in a story? This question suggests to me that the definition of movement or participation is too gross or intrusive for the potential range of the experience. So let's ask this question: Is interactive always participatory – or what IS participation? Let's go back to the loop between the body and media. Maybe thinking of gesture as the generating factor, as the motion or action that sends information or starts the loop, is misleading – maybe we should examine another point – the body as the receiver of the virtual experience of motion from media. The body experiences motion, sensation, its physical perceptual apparatus is engaged, based on how media is authored. The loop still exists, but in a subtler way – a finer grain.

For example: we might be viewing a movie authored to behaviors in a program that assembles the movie by triggering the behaviors in real-time. The behaviors have layers of mutable parameters that combine in complex layers depending on how they are triggered. Performers triggering behaviors in real time can activate the improvisational nature of this program, or the program can trigger itself – a form of automaton. It could be pre-programmed, or fed data after each screening that allows it to adapt to audiences responding to it over time. The significant difference here from the linear sequencing of traditional movies, is that the focus is not on the pre-arrangement of a fixed sequence in time. It's on the design of a program or a machine and its possibilities – its behaviors – and how they will change over time and in time when they are triggered. The instability creates a tension, a level of suspense throughout the experiential loop – something is grasped, lost, anticipated again. It's essentially an improvisational structure, but it can have within it some very linear layers or predictable sequences mixed with layers of random parameters. A key element is that it's unstable, in flux, always changing. The media can be accessed randomly, re-animated, looped, processed, and generally treated as a plastic substance that is continuously changeable. It's a mutable design. It seems to me that in the history of pre-cinema and cinema there's been an inverse relationship between the moving body and the moving image. For example: the panorama is viewed as a

moving body walks past the image. As the images start to move, historically speaking, the body becomes more still – the diorama, cinema. Let's play with the balance of this equation a little.

## **The Program as Performer and The Audience Experience**

Returning to the idea of motion, let's look at it in a different location, separate from the body's action. Let's look at motion as the mutability built into the program that runs media – in this case moving images, sound, and the triggers that cause them to assemble and change. This is the invisible architecture that allows the whole edifice to operate. A computer program managing data. This is not the same assembling as the one happening inside of you, inside the body – it's parallel. And the interface to it – we've spoken about it as embodied in players or performers for an audience – is input that is constantly changing in real time. How much of it is fixed or pre-programmed and how much is happening through a variety of possibilities occurring in the moment is variable, so let's come back to my example: *Spectropia*, which is, as I'm writing this, a work in progress in post-production. It's as yet untested in the field and so still open to change and adaptation to different spaces, different audience scenarios, and different input and output possibilities. It may remain open in this way when completed – waiting for the input of a given context to make it unfold.

*Spectropia* is designed for players to perform for an audience. It has a through line – a story – that doesn't change. It doesn't have multiple endings, for instance. It's about people inside other people – both in the interface and in the story. The audience experiences the players inhabiting and motivating the characters and that echoes the experience of characters inhabiting other characters across time and space in the story. And as we discussed above, there are multiple streams that are dynamically navigable in a way that will constantly change. Like a movie made into a building – or maybe like swimming through a building. This spatializing of narrative makes the story into an improvised experience and one in which the affect of the experience overrides the concern with plot. It's not that there isn't a plot – it's just less important. It's the engine that moves you through time. There are bits and pieces of genre, derailed tropes let's call them, that act as signposts to let you know how to put the pieces together. The movie is exploded, but there's still a strong through line – like a wire running through a pile of sand. And in this case – *Spectropia* - it's always the same story, but the experience is different every time. You see it from different angles, through different characters and through a complex set of changing parameters triggered by the players. And here's an important question: if it's different every time, but I only see it once, does it matter that it will be different - next time, or the last time? I think it does – mutability is embedded in the potential of the experience in a way that transforms it – makes it essentially different from the traditional fixed sequences of linear narrative. It's the difference between the pre-conceived design of a fixed sequence in time and the triggering of responses from a program over time that assembles an infinite number of possible combinations based on changing parameters.

*Spectropia* is a time travel drama that uses the metaphor of supernatural possession to investigate identity: How do I know who I am? And who is pulling the strings? It's a "scratchable" movie performed by video DJs, improvising performers who are playing a movie instrument. I like to think of it as cinematic Bunraku. Bunraku is a Japanese puppet theater where black clad puppet masters accompany almost life-size puppets on stage, manipulating their movement. They are the shadows of agency - as are the players in *Spectropia*. The shadows of agency made concrete – the audience experiences a telepresent agency, an excess, affect, motivation - through the players. And this is just the beginning of an experiment. It could take many forms – your experience as an audience member could be as a player of the piece, seeing it on your computer screen and connecting remotely with another player via the Internet. Or maybe you'll watch it as a movie without visible performers, one that is programmed to play differently each time it's screened - the program as performer – an automaton or an artificial intelligence. It might be learning from audience response over time and adjusting itself to new input, or it might be playing performances recorded by performers at other times in other screenings.

### **Narrative as Consciousness:**

#### **Memory - the Collision of Clock Time and Mental Time**

Now we can return to that flashback button. Recently, I finished shooting *Spectropia* and was starting to assemble the footage when one of those virtual light bulbs went off in my mind. I realized the flashback button that is part of the program and interface concept of *Spectropia* was the beginning of an engine that could recycle story time into mental time. This would allow me to create sequential narrative and then plow it under and re-play it on multiple levels to create the experience of memory and the interior shape of character. In *Artificial Changeling*, an earlier installation and the first iteration of the authoring system I am using now, the motion sensing interface allows a viewer's body to leave its traces in the images on the screen – the viewer haunts the movie. The evolution of the program design has taken me from this embodied interface concept towards more fully developed software, which in collaboration with players creates a model of consciousness as narrative space. This is a fusion of the perceptual process of navigating the present, with the recycling of time through memory. It lets me have both the experience of linear time - clock time or the sequence of story time – and the random access replay of the mind's time, within a single story.

I've mentioned many different aspects of the program's behaviors, but maybe it's time for an overview of the whole structure: two players inhabit two main characters in each century of the story. We start off in a single channel of video – the familiar space of cinema – if the characters in the story move into different cinematic spaces, the screen splits and we can watch the action of both characters or the players can pull their characters action to take over the screen. Control of the screen can then be passed back and forth between the players to cut between the two streams of action. As we enter the more fully interactive spaces each character has three streams of video in a scene. We can be 1.) Inside the character's head, in their eyes or the space of their interior voice, 2.) In the action or the interaction between two characters – the social space, or 3.) Investigating the larger mise-en-scene – the space itself. Two players navigate 'presentness' through narrative interior space, social space and physical space. There are in addition two forms of memory – voluntary and involuntary – these are poetic rather than literal interpretations. Involuntary memory fires off without the action of a player. It helps to illuminate the subterranean spaces of character – William in 1931 for instance, might be obsessed with certain erotic interactions with Verna that keep reappearing in flashes as he moves through the story. Either player, using the flashback button can trigger voluntary memory at any time. It pulls up moments in time we have visited already, but aspects of the scene that have not been screened. Programs can do calculations easily that seem exhaustingly complex to human effort. For the program to track a player's path through the story and know what parts of the multiple streams of each scene have been viewed and which have not is a simple action for a computer program. And so the story is re-played and re-mixed as mental time.

### **So...Where Am I, What Place Is This?**

Mutable improvisational media loops with the body to create place, a sensory, embodied experience. In this case, the virtual is a space of potential and affect. It exists as much in time and in physical experience as it does in media. Think of the players as shadows of agency - a meta layer – a Brechtian revelation of the armature of motivation, and think of their impact on the audience as the suggestion of the potential for change as well as the dynamic improvising that delivers what the audience sees, hears and feels. Altering the sequence of time by recalling cinematic experience as memory lets us step out of the running meter of story or clock time and into the shrinking and expanding time of the mind. This subjective reading of time and experience is helping me to forge a new relationship to linear narrative, while it expands my concept of responsive environments - environments that combine computer programs designed to assemble and display media with interface triggers that accomplish this assembly in real time. Programs that perform, or perhaps I should say programs that perform the body, perform perception. My engines help me to analyze and re-construct time, memory and story – to keep it constantly fluid and unfixed in a way that language can never completely achieve (the virtual potential of these engines is change itself). The experiences they produce have a slipperiness that seems to offer me an ability to travel somewhere new and always undiscovered - and like the tiny machines of an eccentric clockmaker calculating seconds – or the compass of a navigator - they surprise me into re-imagining time.

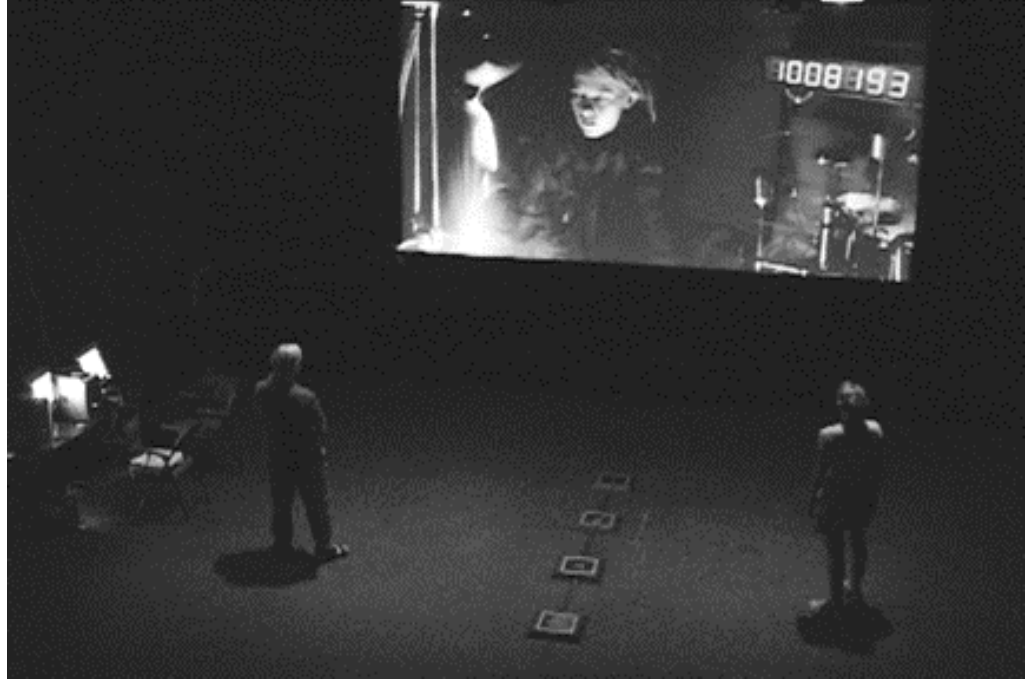
- 1 I am indebted to Brian Massumi for introducing me to Bergson, and to the concept of affect, in a series of conversations over a number of years. Mutations of these concepts as they appear in this essay are the result of wrestling with practice and are my own fault.

I would like to thank Roger Luke DuBois, software designer for *Spectropia* and one of the developers of Jitter, the video environment for the MAX programming language from Cycling'74 which is the base architecture of our proprietary software. His humor and the elegance of his programming concepts have made our machines beautiful.

Many thanks to *Spectropia's* funders: the Greenwall Foundation, Rockefeller Foundation MAP Fund, Langlois Foundation, LEF Foundation, New York State Council on the Arts, New York Foundation for the Arts, National Endowment for the Arts, and the Institute for Studies in the Arts at Arizona State University.



*Artificial Changelings*, Installation, in the Exhibition "Wired", The Art Center for the Capital Region, Troy, NY, USA, 2000, ©Toni Dove



*Spectropia*, Demonstration of prototype, Institute for Studies in the Arts, Arizona State University, Tempe, Az., 2003, ©Toni Dove



*Spectropia*, Production stills from a work in progress, 2004, 1.) *Spectropia* wakes up, 2.) *Spectropia*'s



machine conjurs William, 3.) The Skyscraper Lobby, 4.) William and Verna, ©*Toni Dove*



*Spectropia* played by Aleksa Palladino, William and Verna by Richard Bekins and Carolyn McCormick