

VirtualCinema® Bible

Introduction

Fictional, narrative film is one of the most popular and demanded forms of entertainment today. Interactive media is now becoming a powerful force in entertainment, as well as in training and education. For the most part these different approaches, products and markets have had little to do with one another.

VirtualCinema intends to change that.

VirtualCinema is a suite of technologies designed to create a new form of movie immersive and interactive one where the viewer (viewer/user, also referred to as player or user throughout this document) controls the central character in the film, experiencing the movie through the eyes and mind of the protagonist. For non-narrative properties, VirtualCinema is equally adept at creating immersive experiences based on real-world settings and human interaction

There are four aspects to the VirtualCinema system:

- ! **Overall production methodology**
- ! **High-performance software engine**
- ! **Interface and design philosophy**
- ! **"Holographic," or dimensional, narrative structure**

This holographic narrative structure is designed to create a viewer-controlled "storyworld" which allows for interactivity and viewer impact, but which still maintains the hallmarks of traditional storytelling.

VirtualCinema embraces the dramatic and emotional language of film, enabling filmmakers to participate in the world of interactivity, leveraging existing skills and expertise. The system is designed to work with any style or genre of story.

VirtualCinema is patented and protected by both copyrights and trademarks.

Software Engine and Authoring Tools

The VirtualCinema software environment is an extremely powerful delivery and creation system. It is a cross-platform, object oriented environment that uses a "fourth generation" visual authoring approach which allows authors, designers or filmmakers intuitive access to its features and power.

The authoring tools run on Macintosh and Windows-based PCs.

The runtime engine is available for Mac, Windows and Playstation. A streaming client/server version will soon be available for Macintosh and Windows.

Titles authored on one platform are portable to alternate platforms with little or no effort (depending on platform specifics). A standard VirtualCinema title will run, unchanged, on both Macs and PCs, while the Playstation and Web versions require only graphic adjustments, keeping logical and design structures intact.

Core Concepts

VirtualCinema is built around several key concepts that are facilitated through software tools, a production/design methodology and an interface philosophy.

Granular integration of subjective and objective camera views

VirtualCinema constantly mixes first and third-person POVs. All control, navigation and decision-making (in other words, the interactivity) happens from within a subjective, first-person POV through the eyes of the protagonist. As soon as a command is given (to perform some physical action, speak to another character, etc.) the view instantly switches to an objective, traditional, third-person cinematic presentation showing the results of the choice. This integration has several benefits:

Balance: It creates the proper balance between watching and doing. In the past, interactive digital video suffered from a lack of constant user control. Users would make a choice, then "sit back" as a video scene played. This failure destroyed the feeling of control, broke the immersion and tension and created a form of cognitive dissonance ("sit forward then lean back" control patterns). VirtualCinema's

tight integration of "doing" and "watching" solves this problem, keeping the user constantly engaged and connected to the experience.

Verb Set: It increases the verb set of the interactive experience. In most interactive games, the verbs the commands that the user can give to the software are limited to a few simple, physical options (run, jump, shoot, etc). VirtualCinema increases the verbs to include just about anything that a character in a film or television show might do. With VirtualCinema, interactive experiences can now have both the deep interactivity of games and the dramatic complexity of films.

Identification: It greatly enhances the user's psychological identification with the on-screen character. Audiences of traditional films identify with the main character or characters in some ways feeling the same emotions which the actor (the audience's on-screen proxy) portrays. The mixture of POVs allows VirtualCinema to take advantage of the immersion created by a first-person perspective, while adding the emotional and psychological content which a third-person POV delivers. In almost all other first-person interactive experiences (i.e. games) the viewer is turned loose in the virtual world completely devoid of any defining persona. This approach is essentially flawed. In order to create the level of emotional connection needed to sustain a dramatic property, this persona (or central character) must exist and is best communicated via this tight integration of the subjective and objective views. Unbroken third-person experiences put the viewer in the role of puppeteer existing outside of, and separate from, the central persona of the story.

Coexistence: It creates the opportunity for a completely linear, passive experience to coexist with deep interactivity in the same property. Inside of each VirtualCinema title is complete, linear, third-person film that uses the exact same visual syntax as any other. Since VirtualCinema assembles clips from out of a database in real-time, the third-person material can easily be edited "on the fly" into a linear film. Using this powerful approach allows an audience to decide when and if they interact. Feeling lazy? Put VirtualCinema on auto-pilot and it becomes a film to lean back and watch from start to finish. Feeling adventurous? Stop the movie, dive down into it and take control, experiencing the same material in a completely interactive way.

Synthesized continuity.

A key part of the VirtualCinema system is its ability to edit sequences on the fly by pulling clips from a database. This allows for deep interactivity, customization and user impact. The system is built on, and understands, the rules of visual continuity used by filmmakers and editors. It is capable of creating real-time edited sequences that look as if a human editor has built them and, yet, are total customized for each user. This technique also helps to keep media creation needs contained by allowing clips to be re-used inside of the title, their meaning changed by their juxtaposition to other material, including "Atoms" small clips that have been specifically designed to alter the meaning of other segments (See **Atoms**, below). The system ensures that these synthesized sequences always follow the rules of cinematic grammar with which filmmakers and audiences are familiar.

UberVariables: Psychological monitoring and mirroring.

Another central concept is monitoring and weighting the viewer's choices in relation to a set of psychological variables. These variables, over which each designer has complete control, flow back into the experience, altering the narrative, character behavior, backstory and aesthetics. The engine's powerful real-time video stream manipulation capability can be used to alter the look of the video (brightness, color, contrast, tint, gamma, and saturation) in response to the prevailing psychological states. Audio can likewise be manipulated. These powerful techniques, unique to VirtualCinema, reinforce the viewer's choices creating an experience that profoundly reflects each player's unique personality. See **Ubertools**, below.

Realistic dramatic behavior.

One of the great failings of the vast majority of games is what passes for character behavior, development or interaction. These game characters usually lack the realistic, convincing behavior that is the hallmark of good cinema. Game characters often commit the dual sins of both parrot-like repetition and woodenly ignoring player actions. These robotic kinds of character behavior are very damaging to the audience's suspension of disbelief.

VirtualCinema gives the director tools for structuring viewer/character interactions that will model more closely the behaviors we are used to in the real world.

Approaching a character should result in a unique acknowledgement of the viewer's proximity. Characters should never repeat themselves. They should respond properly to odd or inappropriate viewer behavior. They should exhibit a degree of memory of past events. They should also respond to the viewer's accumulated UberVariables.

Artificial Intuition.

Most games are too complex and impenetrable for the average audience. Many people never finish the games that they buy, finding them frustrating or too time-consuming.

Artificial Intuition is a system for helping viewers through the experience, and for allowing them to "self-dose" on help, while maintaining their suspension of disbelief and dramatic immersion.

There are several different levels of AI. The first is an across the boards reconfiguring of the experience. Playing with AI turned off results in a more game-like experience, while playing with it on causes the title to change subtly, making things easier and more obvious.

The next level of AI is the state of the Artificial Intuition Icon. When it is dimmed, it indicates that a location or character holds no further relevance for the viewer. If brighter, it is signifying that locations and characters still need further exploration or interaction.

Finally, the viewer can activate the icon to request explicit assistance. This also appears in a layered fashion. First, the display will briefly cut away to visual clues or guidance and then return to first-person display/control. Once all these visual clues have been cycled through to meet viewer requests, characters will offer more explicit and direct assistance. The final phase of the system, which appears once character assistance has been exhausted, is a series of "Last Resort" actions. These icons allow the viewer to activate a complete cinematic sequence with a single click. Operations that might require multiple discrete steps can be accomplished with a single click; allowing the viewer to watch the story without the need for low-level control.

Node-based narrative structure.

One of the greatest challenges in VirtualCinema has been the creation of holographic narrative structures that allow for viewer input and freedom while maintaining the well-established dramatic arc needed by any good narrative experience. VirtualCinema uses a node-based narrative structure.

Node: This is the fundamental unit of action in a VirtualCinema title. A node consists of a series of locations and a set period of fictional time. For example, in *The X-Files Interactive*, the first node consists of an apartment, a crime lab and the FBI field office, and takes place from 9am to 11am.

Inside this node viewers have complete freedom to accomplish their goals in any order that they choose. Each node contains three types of objects.

- **Growing Food:** These are the events that must take place for the narrative to make sense. The viewer cannot exit the node until all of the growing food has been seen or accomplished.
- **Candy:** These are the myriad objects which bring the world of the story to life, but which are not critical to the narrative success of the experience. A node can be completed regardless of the status of any candy.
- **Triggers:** These can be attached to any object in the environment and are used to change the state of other objects. As an example, a light switch that turns off the lights is a trigger (attached to an explorable object) which causes the room to change its state, reflecting the shift from light to dark or vice-versa.

While node based storytelling is the "preferred" narrative approach, the tools can easily handle additional or alternate structures. More detail on this can be found in the **Narrative Structure** section of this document.

Interface Design

The VirtualCinema interface consists of three layers designed to emulate the ways in which people experience and manipulate the world around them. They allow the viewer to move through

physical space, interact with other characters and explore both the protagonist's mind at work and the fictional universe of the story.

During playback, these layers present a seamless continuum to the viewer.

The objects in all three layers are "hot" and respond to the viewer in some way. The cursor is intelligent and changes to communicate the options associated with each object or character. This interface philosophy was designed to be separate from the content of a specific presentation; the VirtualCinema interface will work with any genre of film from science fiction or fantasy to naturalistic comedies and dramas. The interface is "transparent," (ie. non-intrusive) highly intuitive, free-form and extensible. It has been carefully crafted and, based on extensive observation and user testing, refined over the past eight years.

Layers

Environment Layer This layer of the interface presents the physical environment. It is fully explorable, navigable and manipulable. Objects in the background layer are hot clicking on them will reveal additional information, such as close up views, sounds, thoughts, etc. Objects can be manipulated (operated, turned on or off, placed inside other objects, etc.), collected, dropped, given to other characters, and used on other objects in the environment.

Story Layer This layer is where most character and social interaction occurs; it seamlessly overlays the environment views, presenting character dialogue and actions as well as segments related to physical objects. VirtualCinema seamlessly jumps from the subjective, first-person POV of the environment layer to the objective, third-person POV of the story layer. Objects and characters in the story layer should be as interactive and responsive as those in the environment layer.

Action Layer This layer helps to communicate the workings of the protagonist's mind the potential for action and reflection that resides within each of us. This layer usually takes the form of control structures (icons and other interface or design elements) which overlay the other two layers. The design and functionality of this layer is completely controlled by each designer and will be unique for

each film. Some of the standard elements in the action layer include dialogue boxes, Question Icons, Emotion Icons and Inventory Icons.

In addition to this layered approach, five additional elements complete the VirtualCinema interface.

Cursors

The cursor is intelligent, changing to communicate the viewer's different options. Clicking the mouse while a particular cursor is visible will cause that function or choice to be implemented. The design of these cursors has been greatly refined based on user testing and observation.

Move Represented by a set of pointing hands, these cursors allow the viewer to move through the virtual space.

Look Represented by an eye, this cursor allows the viewer to access close-up views of objects, vistas, architectural detail and people. These close-ups can offer further choices for interaction, manipulation and exploration. Close-ups can be instantly dismissed, returning the viewer to the standard navigational view with a single mouse-click.

Speech Represented by a mouth, this cursor allows the viewer to initiate a conversation with a character and choose which lines of dialogue to say.

Action Represented by a lightning bolt, this cursor allows the viewer to undertake a physical action (by targeting the appropriate element in the environment) or pursue a task or quest (most often represented by an Action Icon).

Listening Represented by an ear, this cursor allows the viewer to listen to the sound of an object or environment. It can also be used to eavesdrop on the conversations of other characters.

Thoughts/Memories

Represented by a brain, this cursor allows the viewer to access and explore the thoughts, memories and mental aspects associated with, or connected to, objects, events and characters. The materials called up by this cursor include voice-over thoughts, graphic images, video and text. Generally speaking, thoughts and memories are integrated into the experience in a specific way, usually pausing any

narrative or action elements until the thought/memory is complete. This is designed to emulate the basic functioning of the human mind we are capable of thinking, fantasizing, remembering, etc. while events are occurring around us. Usually, these interior and exterior materials coexist without any loss of information to the brain.

Icons

VirtualCinema icons represent a significant number of options for the viewer. Introduced in a free-form way, the meaning of these icons is closely tied to the overall context at the time they first appear. The meaning of an icon is defined by the narrative moment at introduction, an accompanying thought or voice-over, the design of the icon itself, and the "roll-over" text which appears when the viewer moves his or her cursor over the icon. While VirtualCinema currently uses the following icon sets, the approach has been designed to be expandable and extensible, allowing for a great degree of customization from movie to movie.

Question Icons these icons are introduced in the narrative flow of the film and accumulate in the top left corner of the screen, allowing viewers to ask any question of any character they encounter. Like most other elements of VirtualCinema, these icons can be explored without losing the narrative flow of a scene. To activate a Question Icon, the viewer places the cursor over the icon. The identifying rollover text appears; the viewer then clicks the mouse to activate that question. If there is only one character on the screen the selected question will be answered automatically. If there is more than one character present, the player simply drags the icon onto the target character, causing that character's response to be played.

Action Icons these icons are introduced in the narrative flow of the film and accumulate in the bottom right corner of the screen, allowing the viewer to undertake activities in the physical world (visiting characters, performing a specific task, etc.) at any point in time. The mechanism is intelligent enough to know when a given context might constrain, alter or prevent the action from being undertaken. Action Icons can be subdivided into several different styles or types:

- **Global** These Action Icons, once introduced, are constantly available to the viewer until activated.

- **Local** These Action Icons, once introduced, are only available for activation while the viewer is in (or returns to) a certain location or locations, or in the presence of a particular character.
- **Temporal** These Action Icons, once introduced, remain available to the viewer for a limited period of time. This length can be preset, or determined "on-the-fly" by other events, viewer choices or UberStates.

Emotion Icons Emotion Icons allow the viewer to inject a strong emotional response into a scene and, as a result, alter its narrative flow or dramatic qualities. Any number of Emotion Icons can be introduced into a scene. They will appear in the bottom center of the screen and stay for a fixed period of time. Alternately, an author may decide to make Emotion Icons available constantly the biggest challenge in this regard is one of design and authorship, as the software will easily support this approach.

Memory Icons Memory Icons allow viewers to explore thoughts and memories at their own pace without breaking the narrative flow.

Example: In the midst of a scene with an older character, the central character thinks, "This person reminds me of my father." As this thought occurs an icon appears of the character's (our) father. This icon stays present throughout the rest of this scene, allowing us, at any point in time, to pursue the memory. When the icon is activated the narrative flow of the scene, wherever it may be, is suspended and the memory in question in this case, a scene with our father from our childhood plays and then returns us to the narrative flow precisely where we left off.

Diary Icon allows access to the Diary feature. Once the viewer activates the icon the on-going narrative is suspended and the Diary opens to cover most of the display area. Once the Diary is closed the narrative continues where it left off. This icon is almost always present, though the Diary can be represented in a more literal fashion as a specific object in the virtual environment which can only be accessed from that location.

Inventory Icons allow viewers to keep track of, and utilize, their accumulated physical possessions. The user can access the Inventory Icons in two different ways (depending on the wishes of the designer): the Inventory Icon or the Inventory Bar. The Inventory Icon sits next to the Diary Icon in the lower right of the screen and, when activated, unspools a set of icons that represent all of the items in the character's possession. Alternately, the entire current Inventory can be displayed at the same time by simply mousing into the bottommost portion of the screen. The Inventory Bar can be always visible or invisible until rollover.

Dialogue Boxes

These appear at various points in the film and allow viewers to react in specific ways to characters they encounter. Clicking on a line causes the line to be spoken and the character the player is addressing to respond accordingly.

Dialogue choices can either appear in response to viewer action or be triggered by characters.

Dialogue comes in three forms:

Repeatable once asked, the question or statement goes into the dialogue box's "History" tab, allowing the option to be triggered any time the viewer clicks on it again.

One Shot once asked, these choices are removed, and are no longer available.

Chained This type of dialogue (and dramatic interaction) changes with each statement or question (whether from the viewer or a character). Chained dialogue simulates a "flowing conversation" while non-chained dialogue is more useful for information gathering.

Explorables

All of the items inside of each scene are "hot" available for exploration, offering one of the following kinds of responses:

Sound a single sound (such as a stinger), a piece of music, or any other audio clip can be used here.

Thought a voiceover narration revealing the main character's thoughts about a particular object.

Close up a photographic close-up of the item, this is useful

UberTools

The "Uber" tools, outlined below, are a set of emotional and psychological metatools used by the filmmaker to track and respond to all of the viewer's choices, allowing the movie to respond intelligently to an accumulated history, altering its narrative, character responses and overall aesthetic accordingly.

UberVariables

These keep track of different emotional or mental states in the mind of the central character as defined by the filmmaker any number may be tracked and film effects may be keyed off of them.

UberNarrative

A dimensional database of thoughts that is used to deal with continuity issues as they arise. The filmmaker can pull a specific thought from this database to deal with any continuity event. Disembodied present-tense audio can be disconcerting and is not in step with usual cinematic convention. If the author desires, a visual Atom (most probably a close up of the character) can be married with the audio on-the-fly to create a more cinematically familiar presentation. Alternately, using past-tense creates a sense of voice-over narration, which is an accepted (if sometimes frowned upon) storytelling technique.

Example: An announcement over a loudspeaker announces a fire drill. This will result in a thought from the UberNarrative database: "I should probably ignore it and keep working."

Thoughts

Represented by character voice-over, Thoughts can be part of the UberNarrative or can be triggered by any combination of time/space/character/emotion events. This can also be used for delivering traditional voice over narration.

Diary

A place of synthesis, the Diary represents the character's ability to reminisce and synthesize understanding. Tied to the UberNarrative and the viewer's specific pathway through the material of the film.

UberStates

These are prevailing emotional or mental states as created by the viewer and indicated by the UberVariables. They are expressed with the following tools:

Colors Text, icons, dialogue boxes, color washes, lighting can all be changed under software control to communicate the dominant UberState(s).

Sounds Sounds can be altered or substituted based on the prevalent UberStates.

Example: A psychotic UberState might cause all sound effects in the film to have a flange effect applied to them.

Music Music can be altered or substituted based on the prevailing UberStates.

Example: An angry UberState might cause the musical soundtrack to become faster and more percussive.

Narrative The most obvious way to communicate the dominant UberStates, narrative changes can range from minor changes in the ways that characters respond, to alteration or the wholesale substitution of entire scenes.

Narrative Structure

Dimensionality

This is the concept that the narrative exists in three dimensions instead of two. If traditional linear narrative has "amplitude (i.e. the rising and falling action of dramatic storytelling) and forward motion through time, then a VirtualCinema narrative has amplitude, forward motion through time and "horizontal latitude" as well. The horizontal axis is where the user's impact is most significantly shown. This can be realized in different ways, from subtle shifts in the emotional qualities of the film to broad revisions in the plot or narrative content. Most frequently, both the emotive/aesthetic qualities and the narrative content will change in response to the viewer.

Tracks

Tracks are a way of conceiving and quantifying the added "horizontal latitude" found in VirtualCinema. These tracks can represent any number of different possibilities for viewer impact and can range from the emotional to the narrative.

Example: A film could have six emotional tracks, ranging from angry to depressed, and three narrative tracks dealing with the job where the character is working. The combination of these tracks and the film's place on each of the two potential scales is determined by the viewer's choices and actions.

Tracks can be used to represent and manage characters, events, objects, emotional states or narrative options.

Plot Points

These are close cousins to the plot points found in traditional linear films or plays. Simply put, a plot point is an event that "hooks" into the narrative of the story and causes the action to veer off in another direction. Critical to the overall success and shape of the narrative, plot points are a well-established aspect of the language of theatre and cinema. Most theatrical release motion pictures are built on a three act structure with three plot points: one in the middle of the first act, a midpoint and a final plot point in the middle of the final act.

In VirtualCinema, plot points occur in the appropriate places, but the nature of the plot point itself changes to address the interactivity. There are many different ways that the plot points can be altered. Narrative content can be changed wholesale, or the emotional and psychological orientation can be altered while keeping the central event the same.

Example 1: In a traditional film, a single plot point would determine the rest of the film. In a story about a trip to Paris, a traveling American becomes involved with a French woman. At the midpoint of the story, we recall our central character to his hometown (thereby setting up the final act of the film). We could do this by using a variety of story devices, such as:

- He is robbed.

- A family member dies.
- He gets into trouble with the police.

In VirtualCinema, these choices might all be realized, and which event occurred would be in response to the viewer's choices throughout the film.

Example 2: The same event occurs in each possible iteration, but the emotional/aesthetic/psychological context changes in response to the viewer's history. In our story about soldiers, the final plot point is the death of a secondary character, but early choices (do you spy on the character at the behest of a fellow officer, do you and the soldier have a falling out, etc.) will alter the viewer's *orientation* to the event. Spy on your friend and you feel responsible for his death; another set of choices will result in the paranoid apprehension that whoever killed him will next seek you out.

Coercion and punishment

This is a technique for controlling the film, ensuring that it will continue to move in the appropriate direction(s). Plot points are good examples of coercion. Coercion can be used to get the film back on track, can be embodied in characters, objects or events and can be triggered by time, place or character actions.

Example: You are exploring the lobby of a hotel. After five minutes of film time, a bellboy approaches you and tells you there is a phone call for you. The phone call is from a business associate who tells you to meet her at a certain location.

In addition, UberNarrative can be used in conjunction with coercion to synthesize continuity on the fly, making for a seamless narrative presentation.

Example: A broadcast announcement that all new recruits should report for orientation will result in a thought from the UberNarrative database to the effect that, "I'll need to get there soon." The viewer continues to have complete freedom of movement. If after a set span of film time the viewer hasn't navigated to the orientation, a second announcement will occur, triggering a more emphatic thought about the urgency of getting to the

proper location. A third delay and announcement will be greeted with a final thought ("Time to go!") and then the viewer will automatically be taken to the appropriate scene or location. Navigation can be continuous and literal or a more abstracted and cinematic means of jumping to the new scene can be employed.

Continuity

VirtualCinema uses several techniques for synthesizing continuity.

Atoms These are tiny "building blocks" of communication that can be used to synthesize continuity at the conversational level.

Example: A character explains what he had for lunch, saying "I had a corned beef sandwich " The viewer interrupts the narrative flow to ask the character (via a Question Icon) "What is the weather like outside?" The character stops talking about lunch and says, "It's going to rain soon." At this point a dialogue Atom is used; a video clip of the character says, "So anyway, like I was saying..." and the previous narrative continues from the point at which it was interrupted, "cole slaw, french fries and I was very bad I ate a whole chocolate cake for dessert."

Atoms can be keyed to the status of the UberVariables and each character or object can have its own discrete time and logic lines.

Visual continuity is dealt with using the juxtaposition of "cuts" in the story layer, as well as between the story layer and the environment layer. Using reverse angles, over-the-shoulder shots, the real-time combination of visuals and audio, and properly constructed Atoms, it is possible to create sequences which are built on-the-fly, but which appear to have been edited "in the can."

UberNarrative the dimensional database of thoughts can be used to deal with any continuity problems that arise at the scene level.

Diary Film-wide continuity can be dealt with in the Diary using text, voice-overs or video.

Production Methodology

VirtualCinema is also an overall approach to the production process that draws on techniques from film production, software design and digital video production. A full explanation of this aspect of the system will be presented in a separate document.