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Machine (the computer)+Cinema=Machinima

Lev Manovich has argued that cinema and its conventions are the dominant cultural interface of our time, and that the language of cinema is being remediated in newer forms appearing in various other media. Although I find the concept of a cultural interface to be attractive and useful, I don't agree that cinema is the dominant cultural interface. Rather, I think animation deserves that honor, and in this paper I use my case study of Machinima, an approach to filmmaking that incorporates new media elements, to prove my point.

The term Machinima means films made by machines, and the history of the Machinima movement is closely linked with the development of first person shooter games, their approach to graphic design, and their methods of distribution.

BEFORE MACHINIMA: FIRST PERSON SHOOTERS

Let's start with the history. Steven Poole, in his book Trigger Happy: Viedeogames and the Entertainment Revolution (NY : Arcade Publishing), credits a 1980 game for the Atari called Battlezone as the first "first-person" game, where the screen showed the action from a perspectival point of view, as if you were really there." (p.112). Battlezone is not usually credited as a first-person game because it was drawn in vector graphics, that is, straight lines that connect any two points on the screen. This was the beginning of the "wireframe 3D" look, where objects like tanks or mountains were outlined but the planes were

transparent, not filled in. At first these outlines were a luminous green, but later games such as Star Wars had multi-color outlines. Wireframe 3D became the accepted way to depict virtual reality in films such as Tron. The focus is on the edges of things, and objects are created out of polygons.

Battlezone used these polygons to present the player with a world drawn in "scientific perspective", that is, a world with vanishing points and where parallel lines converge in the distance. With horizontal and vertical scrolling capabilities added to these types of games the player had the illusion of standing in the center of a cylindrical panorama. In 1982 isometric perspective was introduced in Sega game called Zaxxon. The term isometric comes from the architectural practice of isometric drawings, which maintain constant symmetry by drawing all horizontal lines at a thirty degree angle to the horizontal plane of projection. The result is no vanishing points and equal emphasis given to all three planes. "In videogame terms, this means that an illusion of solidity is created while preserving an external viewpoint. You could see three sides of an object rather than just one; and now, crucially, the game screen was not just a neutral arena; it had become an environment." (Poole, p. 121). Movement was not in three dimensions, but motion was automatically one-way, a function of scrolling.

Isometric perspective had its heyday and is now still used for games like SimCity, Civilization, and Command and Conquer, all games in which the player controls numerous units (people, tanks, factories, etc) within a vast playing area and with an omniscient overview.

But the foreshortening of scientific perspective had certain advantages: it implied a subjective, individual viewpoint, it promised a degree of immersivity that the god-pov of isometric perspective could

never deliver. (Poole 122-23). Scientific perspective made a comeback with the first truly "immersive" 3D game, Wolfenstein 3D (id, 1992). This kickstarted the first person shooter genre that we are concerned with here. Wolfenstein put the player into rooms, separated by doors, with walls receding realistically into the distance and populated with bots that took the form of Nazi soldiers for the player to destroy. There was no texture on the walls or ceilings so only the walls moved with forward movement, and the bots looked two dimensional as they were drawn with bit-mapped sprites whose pixels enlarged as they got closer. Wolfenstein made another innovation which was adopted by the genre, which was to include a representation of hands (the player's hands) clutching a gun at the bottom of the screen. The gun is not used for aiming, but it does make the player feel more like they are incorporated into the space.

The creators of Wolfenstein 3D were John Romero and John Carmack, co-founders of id Software. Wolfenstein 3D was innovative in another way as well: the first of its three levels was distributed for free over the Internet, as "shareware". The complete game and two other variations of the game, that is, new games using the same engine, were sold via retail. Id Software built on its success by producing Doom, with a graphics engine designed by John Carmack, Tom Hall leading the game and map designs, a job completed by John Romero when Hall left. Romero also designed the game's map editor. (Steven L. Kent, The Ultimate History of Video Games, From Pong to Pokémon and Beyond – The Story Behind the Craze that Touched Our Lives and Changed the World, Prima Publishing, p 458-6-59). Jay Wilbur, id's PR man, would leak bits of information about Doom before it came out, so that by the time the shareware was available from the University of Wisconsin's server in December of 1993, the server was overrun with people trying to

download Doom. (Joystick Nation, p 83-84) Up to four people could play one game at a time, and games like "Deathmatch" in which players went after each other instead of after bots, became popular, earning first person shooters the ire of many educators, politicians, and parents. (A cooperative mode where players can cooperate in order to win is also possible, but rarely commented upon). Doom set the standard for subsequent first person shooter games, such as Quake, Quake II, also developed by id Software, and Unreal, by GT Interactive.

But what was really special about Doom, or, more accurately, about id Software's marketing strategy, is that along with the game they also released the source code of the game itself. Once gamers had familiarized themselves with the game they could improve game levels, add sound effects, or build new levels altogether. Some of these fan-created levels became so popular that they then became incorporated into the game, as Quake's "capture the flag" has been. It was a brilliant marketing strategy, as it created a large community of people who were committed to the game. And each new version of the game brought with it a new and improved game editor.

Customizers of Quake could use Quake's editor to make a racing game, a flying game, and someone even made Quess (Battle Chess meets Quake) and Quake Rally, a patch that brings arcade-style racing into the world of Quake. Even the game's creators were amazed at how Quake's game editor took off, and how willing people were to build their own levels. For Quake II, the game editor was improved with the customizers in mind: the QuakeC language of Quake was replaced with programmable Windows DLL files that offered users more control over the camera view, screen fades, pinning objects together, and more. (Colin Williamson, "This is Quake II: What are you going to do about it?", PC Gamer Vol. 4 No 10,

October 1997, pp. 98-122).

The Quake editor continues to be very popular, but its popularity was soon matched by the popularity of Unreal, and later Unreal Tournament, by GT Interactive. And it was the Quake and Unreal engines that were most popular for use in the creation of Machinima.

HISTORY OF MACHINIMA

What exactly does a game editor allow a player to do? First of all there is the level, or map, or environment design. Then there are the character avatars, which includes making models and then dressing them up with "skins", or specific characterizations – a digital version of paper dolls. There is the design of weapons and tools and ways of customizing the environment through lighting and sound. Players with some programming skill can modify the game code itself; the resulting modifications are called "mods", and the people who modify them, the "mod community." Game levels have two main parts: interactive sequences, such as battles, and non-interactive sequences, also known as cut-scenes. Cut-scenes are very similar to traditional film sequences. The first Machinima films were not actually films but players saving their own record-breaking game play in order to post it to the web and show off their prowess or that of their Quake clan, and also cut-scenes (linear, non-interactive sequences within an interactive game, usually used for exposition or emotional identification with a character) in commercial games, which still serve as role models for Machinima filmmakers.

The first Machinima filmmakers came out of this mod community, in other words, they were gamers first and filmmakers second. One player only known as "CRT" (later revealed as David Wright) created a mod called Key Grip which made movie editing available to Quake gamers.

According to the press that I have read, the Machinima era began in 1996 when a Quake clan called The Rangers produced a demo called Diary of a Camper which was really a movie. Quake players used the game as a virtual movie set to produce the movie based on a pre-rehearsed script. Hundreds of Machinima films have been made since, and gamers quickly realized that learning something about filmmaking would help them in their efforts. Those who knew shared what they knew with those who didn't, primarily in the form of tutorials posted on websites like Machinima.com and Gamasutra.com.

The terms Machinima itself was actually coined by the members of The Strange Company, based in Scotland: Hugh Hancock, Gordon MacDonald and Anthony Bailey, who also developed the portal Machinima.com and wrote most of the filmmaking tutorials to be found there. Strange Company produced the now classic example of Machinima filmmaking, Eschaton, based on the writings of H.P. Lovecraft.

Another well known producer of Machinima films is the ILL Clan, who produced Apartment Huntin' and Hardly Workin' using the Quake engine. Apartment Huntin' made history when it became the first Machinima film to stream on Wired's animationexpress.com website. The ILL Clan had to ask permission from id Software to do so, as the code is still theirs. This is one reason why Machinima remains a hobbyist form of filmmaking. To remedy this Strange Company is working on a set of film editing tools using the Lithtech II (Monolith) game engine that they hope can be used to produced works for sale (however, work on this seems to have ground to a halt). Other ways of making Machinima pay include using Machinima films as portfolio samples to get a job in the gaming industry and for companies, using your portfolio to get advertising contracts. (Katie Saken and Tommy Pallotta, "Shoot First, play later: Filmmaking

with Gaming Engines", Res, vol. 3, Number 2, 2000, pp. 48-53.) Strange
Company now hardly has time for Machinima, as they have been doing
contract work for the BBC and EA and are doing more traditional
computer graphics work.

Most Machinima films run less than ten minutes in length and are
downloadable for free on the Web. There are also Machinima film festivals
and more established short-film sites such as Atomfilms are now showing
Machinima films. A typical Machinima film is produced by first writing a
script, then rehearsing and recording the actor's vocal performances,
then creating a visual world using the game editor (Unreal is currently the
most popular) to first create a map of the world and then to populate it
with objects and models (characters). Once the models are built the
game editor is used to animate them. The game modelers are fairly
limited in what they can do so figures often look very boxy, but those
with the skill and the means can use commercial 3D modeling packages
such as 3D studio Max and then export their finely modeled object into
their new level (the "mod") or to their film. In other words, Machinima
production has much in common with films that depend heavily on CGI,
such as the recent Final Fantasy.

SHOW SOME MACHINIMA FILMS

MACHINIMA VERSUS CINEMA

If we start out with the assumption that Machinima is a new form of
cinema, then it's clear that the opportunities and limitations of Machinima
are leading to certain changes in film language. For example a 360
degree pan, or circling camera, difficult to achieve on a film set, is very
easy to do in Machinima and as a result tends to be overused. Slow

motion ("slomo") is necessary to make action sequences read clearly, but in films it is usually used for emotional emphasis (and it is generally avoided in customized game levels). Fades-to-black are used in between scene changes, not to indicate the passage of time as it does in traditional films but to cover up the fact that a new digital map is being loaded. Instead of talking about POV or depth of field, Machinima filmmakers talkabout Field of View (FOV). A wide FOV, 90, comparable to that of a fish-eye lense, is typical for mod applications, but 52 is closer to a standard cinematic depth of field.

Mod designers and Machinima filmmakers have numerous forums for active discussion between themselves on the web, and by reading these discussions it is possible to see how this new genre is evolving. In my research for this paper I focused on the tutorials for the mod community that aimed to help them make better Machinima. Most of these tutorials were written by people who were not actually filmmakers themselves, though some of them had done special effects work for film. In every case, when a mod-customizer cum-machinima filmmaker had a query about how to do something, the tutorials recommend the classic cinematic solution – even when this solution was very difficult to achieve in Machinima. For example, machinimists are advised to cut on the action, even though this is incredibly difficult to do in a game editor. A more limited, and therefore cinematic, FOV is recommended. Circling camera, typical in games, is discouraged except for a rare emotional effect, as are overdone uses of slowmotion such as the bullet effect familiar to us from films like The Matrix. Machinimists yelped with delight when new shareware enabling lipsync became available, though sync was typically not very important in game levels.

The message of these Machinima tutorials is loud and clear: when

forced to choose between the visual conventions of first person shooters and cinema, the machinimists are encouraged to choose the conventions of cinema. The texts most recommended are Steen Katz's.Film Directing: Shot by Shot and Film Directing: Cinematice Motion, and Daniel Arijon's Gra mmar of The Film Language. The machinima tutorials refer to these books as "film theory", although we cinema studies people recognize them as poetic guides to options available to the director in staging a sequence.

CINEMATIC INTERFACE OR ANIMATION INTERFACE?

This overlap between cinema and animation reminded me of a similar overlap that existed at the beginning of cinema's history. In an earlier article ("The Quest For Motion: Moving Pictures and Flight" published in Visual Delights) I pointed out that the first filmmakers were really the animators like Émile Reynaud who drew images on acetate by hand, linked them on perforated leather strips, and displayed them to a paying public in Paris from 1889 to 1894. Early trick films which relied heavily on stop-motion animation were an outgrowth of the same approach to movement, the motion studies approach, best known to us through the work of Muybridge and Marey.

        The production of animation itself gradually became more mechanized. At first artists like Emile Cohl, who began making animated films for Gaumont and Lux in 1908-1909, and his U.S. counterpart, Windsor McCay, had to produce every drawing for an animated film by hand. The laboriousness of this process was often highlighted in films, and live action and animation were combined in order to reach the one-reel standard length while still staying within budget. The only difference,

at this early stage, between live-action cinema and animation was the source of the image. (see my forthcoming article "Proto-Cinematic and Cinematic Technology 1800-1930: The French Drive to Mechanization and Digitization" in the THE FRENCH CINEMA BOOK edited by Michael Temple and Michael de Witt).

This is even truer today then it was in 1907, as live-action images, artificially produced photographs, and animation work, whether it was produced using rotoscoping, motion capture, key framing or computer simulation techniques, are all combined to produce films that range from Attack of the Clones to Dinotopia to A Beautiful Mind. Lev Manovich, in his book The Language of New Media, has argued that when the history of media is considered as a whole, live-action cinema will be a small chapter in its history. In the same book, written before the advent of Machinima, he explains his theory of cinema as a cultural interface, in other words, cinema as the conceptual prism though which we understand our culture in general. Based on what I know about early cinema and what I see in digital cinema, netcinema and machinima, I would argue that it is more likely that Animation is the dominant cultural interface of our time, with the language of cinema being just a part of it. If we understood cinema as a subset of animation, instead of treating animation as the bastard step-child of cinema as is usually done, then we could better appreciate the relationship between trick film techniques, such as the stop-motion techniques used in early cinema, in the special effects of artists like Ray Harryhausen, and the digital versions of stop motion that have been standard in Hollywood films since Jurassic Park. The film and television industries are still in the process of making the conversion from analogue to digital production, but already even the most straightforward dramatic film, like the recent A Beautiful Mind are filled with digital effects

quite similar to those used by Machinima artists (I am thinking now of the change of seasons outside of Nash's window at Princeton and the moment where he tossed his desk out the window – all effects achieved with a combination of studio set and digital technique). If I am correct, and animation really is our dominant cultural interface, then the way of the future has already been paved by artists working in the computer game industry and its offshoots such as Machinima.

Thank you.

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IN FILM YOU	IN MACHINIMA YOU
Fade to black to indicate Passage of time	Fade to black to indicate loading a new level
Use slowmotion to indicate Heightened emotion or importance	Use slowmotion so the audience can see detail
Talk about depth of field Which is measured in mm	talk about FOV (field of view) which is indicated by a real #
Cast actors	design models and put skins on

Write a script, rehearse	some things don't change
Use rules of montage & editing	ditto, once you get used to FOV
Use 2D effects to create a 3D world	use shareware animation tools tools to create a 3D world