Abstract for

Making Sense of Virtual Worlds and User Driven Innovation Research Workshop

Theory, Concepts and Terminology Track

Typecasting Virtual Experience

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Extended abstract *(which I have to admit, I'm not quite sure what that is, but you can read this as about ¼ of a paper)*

The historically recent advent of interactive 3D computer graphic cultural forms has started to coalesce into several distinct areas. Computer games, virtual reality, virtual worlds, scientific visualization, simulation and 3D cinema, each evoke a different set of suppositions and expectations. These differences include aspects such as: temporal unfolding, event structure, visual aesthetics, types of interactions, human-computer interface and the outcome of the experience. However, the use of interactive 3D graphics across these forms is not just a common technological basis, it forms the underlying representational schema, with similar relationships between the self, the world, its representation and the other. If that is the case, why have these classifications emerged and are they useful? How might either clarifying or disrupting these categories lead to more interesting (or effective) outcomes?

As this situation starts to create a taxonomy of virtual experience, a bit of lineage is useful - at least so that rhetorical position is established. Some of the key moments in this development include: 1)the SAGE and Whirlwind projects - US military R&D to create an air defense system which created the first computer graphic displays and a flight simulation system. 2) Ivan Sutherlands 3D Sketchpad 3) Bell Labs, Lawrence Livermore and Boeing Aircraft create computer animated films of things such as satellite orbits, fluid flows and aircraft vibration in early 1960's. 4) New HCI devices created by Sutherland (HMD), graphics displays by IBM, Engelbart invents mouse and other things 5) algorithms developed in the 1970's for raster graphics displace vector representations and computational acceleration techniques of these algorithms codify into widespread software systems and later into hardware. 6) Early computer games develop -Space War etc, video game industry develops, 3D systems in arcades and then homes. 7) Virtual reality (Sutherland again) becomes a development focus of NASA. 8) Simulation for vehicle training is key to military and commercial aviation industry. 9) Home computing use spurs BBS's which when mixed with D&D make MUD's and MOO's. 11) 3D graphics and early cinema - FutureWorld (Ed Catmull student of Sutherland goes on to Boeing LucasFilm, Pixar, Disney) TRON (Narrative of computer games for first large scale use of computer animation in feature film; nuclear radiation simulation techniques becomes basis for rendering techniques). And now we are left off somewhere in the early 90's with these technologies, industries, and ideas recombining into new forms, while simultaneously entrenching themselves in separate paths.

Across this same time span, popular imaginings of the outcomes of representational revolution are specultated upon in science fiction literature and cinema. The movies take up the coming conundrum of the world of mediation and the world of the physical in

films such as: Strange Days, Lawnmower Man, Wild Palms, Until the End of the World, Videodrome, Total Recall, eXistenZ, The Matrix and others. Filmmakers such as Katheryn Bigelow, David Cronenberg, Wim Wenders and Oliver Stone seem to be concerned and/or excited about what might become of their craft and the possibility they would have to direct substantial parts of a new reality.

Meanwhile, the underlying (technology) components of this new reality continue to rapidly develop, not quite fulfilling of the fantasy of replacing a mediated world with a real one, but at a pace that encourages a complex intermingling of how the physical and the mediated construct our realm of experience and operation. The development pace destabilizes the anticipated development paths and the undertakings of the form. The outcomes of the methodology seem to be incoherent and ineffective at expressing the complexity that speculation upon them posited. Avenues of focus have thus developed which coalesce around particular concerns and market opportunities. Clarity of expectation, purpose and use value has driven differentiation of forms into activities that can pass muster of venture capital business model analysis, and now offer a popular cultural attributes that are knowable, such that someone approaching Call of Duty knows how it broadly differs from Second Life.

So we have reached a point where there is enough economic activity in the initial named categories, that they are propelled down paths of distinction rather then looking across forms to see what might be necessary to move forward the entirety of the paradigm. Each is mining a niche: virtual worlds and socialization, games and structured activity, virtual reality and fidelity, simulation and measured outcomes, scientific visualization and process encapsulization, cinema and visual aesthetics.

Looking at what each of these realms develops independently, we see the significant components of the entire field; the elements that each subcategory undertake to their benefit can be furthered intertwined to create outcomes that defy the categorizations that currently exist. While some of the reasons for developing these separate threads can be attributed to markets, others have to do with technologies (whose developments are driven by both markets and knowledge). A critical understanding of these conditions can provide a basis for imaginatively transcending the narrow underlying assumptions of these categories.

In my course "Alternative Narratives and Aesthetics for Computer Games" the response from my students is surprising when we look at virtual worlds. The course looks at a range of video games - historically and contemporary which utilize a wide range of styles - yet when we come to look at virtual worlds, a majority response is a rejection on aesthetic basis. Granted it is a course that attracts self-described video gamers, but they have no trouble engaging 8bit Centipede's, Pac-Men and Zorks, yet they stumble on the "ugliness" of Second Life. It is as if Second Life has found its own Uncanny Valley in relationship to video game representations - too close but yet so far from what it alludes to. Polygon counts and rendering algorithms have something to do with it, but is also the general artlessness of the real world. Experiencing virtual worlds is in part an extension of the unstructured, the unauthored and the uncomposed. In comparison to more contemporary games with arguably similar aesthetic qualities, such as The Sims or GTA III, despite the general openness of those "sandbox" games, the methodology of a Second Life type virtual world is upon social interactions. A participant/player/viewer isn’t articulating a latent system of actions that have been

authored into the environment as in a sandbox videogame, nor are ones actions going to trigger narrative interludes, satisfy strategic or tactical puzzles, etc...

MMPOG's such as World of Warcraft collapse these two distinctions. Playing with the structure of the environment as well as with the social milieu is intertwined. In this case, those who see it and don't play it (such as the above mentioned student group) reject it due to its arcane narrative basis. Some can be enthralled by the data and task mastery that compels one to thrive in the world; others are disdainful of the Orc/dwarve/troll narrative fantasy.

Computer games have developed an increasingly computationally sophisticated visual vocabulary. Until the mid 1990's, The investments (financial and intellectual) in computer graphics were driven by simulation for training, scientific visualization, cinema rendering, and virtual reality. These vertical markets supported expensive and exotic technologies which were unfettered by the need to conform to standards, but were then also unable to build on economies of scale and shared methodologies. The advent of computer games that utilized 3D representational space changed both of these equations, and transformed the economic and technological basis for all of these practices. It also brought with it an opportunity for developing a cultural literacy regarding virtual space operations - establishing the role of the viewer in relationship to the represented, the represented in a new relationship to the representation, and the self to the other. Each of these areas also develops attributes of virtual representations differences from previous representational forms. Key aspects include the role of data (its diversity of sources and types), the algorithm as an encapsulization of process that allows for predictive and forensic analysis and the users creation of outcomes of interactions between data and algorithms, making the possibility space of visualizations nearly infinite, while de-priviliging the singular outcome of those visualizations. Much was made of the sensory engagement of the individual with this user centric scheme. The capacity that the technologies have of centering the scheme not just on the user, but upon the users left eye, right eye, left ear, right ear, index finger, thumb etc.. leads to the full immersion of the user into the realm of the representation. (It is interesting to look at two movies that come out in the late 1990's that take up these issues - The Matrix as the last work considering virtual reality in the terms of the early 90's and eXistenZ the first to cast this conundrum in the terms of the game.)

While computer games made a significant impact on the development of the virtual – they have also dug a few ruts into this terrain. A few games made a spectacular amount of money (GTA series, The Sims, Unreal Tournament (Counter Strike), Half Life, Doom, Halo, Mario franchise, etc...) Some provide an easy formula for derivative products, a predictable market, and a method of production. Changes to proven formula are undertaken at the level of improving the surfaces – use a new shading algorithm, double the polygon count, increase the texture map sizes or add a new weapon/villain/combat/level type. The economics of production belie the creation of alternative outcomes. But perhaps more then that, the coalescing of the idea of the video game is undermining the way in which the operation of the virtual is itself imagined. Again, an example of students looking at "games" such as Flower, and who apologetically express how they like it even though it isn't really a game.....

Despite some of these shortcomings, what these games have shown is the development of a complex aesthetic, an intertwining of authorship that melds visuality and events in a

compelling manner. By comparison, virtual worlds are impoverished forms, and at this point, they risk becoming self-parodies. What underlies this?

In this case, a great deal of the difficulty is in the combination of market and technologies. Both conspire to create an idea of the virtual world as either an open ended arena of socially unbounded activities (which leads to a predomination of virtual spaces as sites to engage in inconsequential alternative social behavior) or they are tied to the types of narrative envelopes that are perceived to be marketable to a predictable sub-group. Even though on the one hand, the world is seen as an open forum, the technologies and content are tightly controlled.

What is lacking in these worlds is their development from the underlying attributes of the forms that they are working with. A virtual world can trade upon its ability to mimic physical space, yet it lacks so many of the attributes of that space that it is ultimately a hindrance to its operations. (This is in part of the technology mandate of virtual reality, and the shortcomings of that line of research should be understood for the ongoing creation of virtual worlds.) The affordances of the virtual are the operations of the digital. The interest that a virtual world holds for us is in allowing us to undertake the condition of computation.

To this point, virtual world systems have undertaken extensibility by facilitating dynamic social environments. Having many users engage in unknown ways in unknown numbers creates the opportunity for a dynamic and unforeseeable virtual world experience. That these users also build aspects of the virtual world system leads them to become increasingly varied over time. However, the means by which users extend these systems and the types of activities that they promote are less variable then they casually appear. Users extend these commodity virtual world systems through adding static content in ways that are highly constrained and predetermined. This leads to some coherency benefits to the experience of virtual worlds. However, it also places strict limitations on the types of activities that are provided for, and is pre-maturely constraining the cultural role that virtual worlds might play.

Procedurality, on the other hand, embeds the virtual world with computational qualities that can go hand in hand with creating a new social milieu. The texture of this realm does in fact have an authorial stance, and the participants within act in accordance, in opposition and/or in apathy to this position, yet it provides a considered point of cultural departure rather then one that is simply an accepted condition. One outcome of procedurality is a determined uncanniness - this is unlike the "valley" that is fallen into when the desired outcome is not achieved, it is the wonder between the expectations of the user and the encountered. It opens the experience for consideration of each gesture within the virtual as to how it reflects upon ones understanding coming into it, and how one is transformed upon leaving it.

Procedurality in virtual worlds also changes the aspects of the productive process. Eccentric visions have an aesthetic efficacy that might otherwise require the activities of dozens of salaried employees. It can harness the energies of many times that number of participant action to express its outcomes. Eccentric visions in and of themselves is not the only measure of worthy outcome to a change in process, but it is a start and an improvement on the current condition of a handful of virtual worlds that are either facades for anonymous sexual encounters or graphical D&D sessions.

As an example, The Scalable City virtual world (see http://scalablecity.net), is a virtual world in which the elements of virtual representation (the polygon, the texture map) are forefronted as the material qualities of the virtual world. Users together unfold latent capabilities of the intermix of algorithms and data that are authored into the virtual world. The experience is not meant to be a general purpose platform, but a particular conceptual and aesthetic encounter between an artist, a material expression and audience. That the audience are now participants, and that they are also encountering each other is a reflection of the general condition of culture in the 21st century, where social operation is now a considered attribute of cultural experience.

If the variation of virtual world experience isn't broader then that of say television of 1955, then it should at least be as varied as that. But of course, we are capable of much more. At least that is what my science fictions have led me to believe.