Game Engines as Creative Frameworks
Robert F. Nideffer, 2003

Abstract: The purpose of this essay is to: 1) extend the notion of the game engine by exploring how the social contexts within which these tools emerge themselves function as the "engine"; 2) look at some of the ways in which the organizational goals of the game development community are at odds with those of the artistic community, particularly for those artists who represent "new media arts" and make their living at least partly in connection with academic institutions; 3) examine how the conceptual arts respond creatively and critically to the dominant cultural frames by attempting to reframe taken-for-granted, habitual, and often oppressive social and institutional relations of power and privilege; and 4) focus specifically on contemporary artists using game engines for their creative work as an example of these reframing practices.

Laying the Groundwork

I'm using the notion of "framework" and "framing" to refer to the context, viewpoint, or set of presuppositions or of evaluative criteria within which a person's perception and thinking seem to occur, and which tends to selectively constrain the course and outcome of action taken in relation to that thinking (Fontana, 1988). Often times in this sense "framework" is used synonymously with "ideology." As I've argued elsewhere, there is admittedly some slippage here. For clarity's sake, let's postulate ideology as a complex web of systematically and institutionally related ideas, values and norms that is often seen as having a material basis as it articulates the social world and positions subjects within it. On the other hand, the notion of framing more readily allows for a give and take to be injected into rigid and unidirectional understandings of ideology that tend to be theorized as inflexible and resistant to change in earlier literature on the topic. As such, frames can become tactically and strategically mobilized when consciously utilized in effort to realign prior framings that have become relatively fixed and stabilized (Johnston and Oliver, 2000). Good frames (the objects), and effective framings (the objects put into action), have a cultural resonance, meaning they are in synchrony with a collective or shared belief about how the world works, albeit a belief that is often hidden and taken for granted until exposed and/or threatened with a competing frame (Nideffer 2003).

My assertion here is that this is exactly what the conceptual arts has largely been about, responding creatively and critically to the dominant cultural frames constraining perception of and action within the world by attempting to reframe, reposition, and rearticulate taken for granted, habitual, and often oppressive social and institutional relations of power and privilege. I also would assert that this tendency within the conceptual arts runs in fairly direct opposition to, for example, the sustenance and success of the game development community as it gains increasing economic force and legitimacy as a viable and desirable entertainment form in contemporary culture. Thus the role played by the contemporary artist using game design principles, metaphors and technologies in their creative practice becomes not only irrelevant, but if successful, potentially threatening, to the role of the game developer working in the context of the industry from which it spawns. The tension between these roles is precisely what I want to attempt to begin mapping out in what follows.

I want to extend beyond the notion of the game engine as purely a software interface used to run the game application written for it. I'm interested in exploring how the contexts within which these tools emerge can themselves function as the "engine." Thus we can start to unpack the ways in which the corporate engine required for the game development community's survival – one which is largely predicated upon efficient institutional reproduction through habitually patterned behavior and product in as unproblematic a way as possible – can be diametrically opposed to the goals of contemporary artists attempting to call into question and expose the often times problematic conditions that result from this type of engagement. Clearly, the metrics for success within these respective communities are quite different, and start to explain the problems that can arise as representatives of these communities attempt to build bridges to each other in order to collaborate in various ways – whether in the context of things like industry sponsorship of an artwork or exhibition, technology transfer between industry and academia, or the establishment of new academic programs presumed relevant to corporate needs.

Economic Agendas

Unless you have been living under a rock, it is safe to assume that you have been exposed to the tremendous economic growth and cultural adoption of games and gaming culture into mainstream media. Since 2002, according to the NPD Group, the console gaming industry – which includes retail sales of U.S. video games, including portable and console hardware, software and accessories – has hovered at around $10 billion US dollars. The total console, portable and PC game industry was a record $11.7 billion in 2002, while console software and portable game software sectors alone saw roughly $5.8 billion in sales (Fudge, 2004). In 2002, roughly 60% of Americans over six years of age – about 145 million people –

played computer and video games. Over 221 million computer and video games were sold, or almost two games for every American household.

Usually these figures get compared in some form or fashion to revenue generated in the motion picture industry – most often in connection to box office ticket sales in effort to make the point that the game industry has either already surpassed, or soon will, the income generated in the film industry. While these comparisons can be problematic and misleading, it nevertheless is safe to say that the game industry is rapidly expanding, hugely profitable, and just at the beginning of what promises to be even more dramatic growth as the industry matures and figures out not only how to go mainstream by tapping into underrepresented populations, but how to go global as well by penetrating entirely new economic development zones.

Professionally trained anthropologists are now being employed by some of the largest games makers in order to help them figure out how most effectively to begin gaining market share in foreign locations. A fascinating new role for academics, though it harkens back fairly directly and uncomfortably to one played at the birth of the discipline in many ways – where the object of analysis was engaged with from more of a careerist and quasi-colonialist perspective than one borne of sensitivity to local concern. A fairly problematic position to take, I would argue. This is especially true in that Western anthropology, particularly as it took a critical turn in the 1980s and began to be influenced by feminist, post-colonial and post-structuralist approaches. With this redirection, the emphasis shifted from the obsessive description and documentation of the "other" in order to better understand, communicate with, and/or dictate to *them,* toward a more self-reflexive methodology adopted in effort to get a handle on how the research agenda as well as the researcher gets rearticulated *through* that presumed "other" and reflects back upon the individual doing the analysis more clearly than upon that which is presumed to be analyzed. Consider me a moralist, or perhaps an idealist, but somehow having your fieldwork be figuring out how to get the proverbial "Bongo-Bongo" playing the "Return of the King" just doesn't sit very well. This new job description takes the idea of "applied anthropology" to a whole new level.

As previously indicated, the issue I want to address involves looking more broadly at the ways in which the organizational goals of the game development community are at odds with those of the artistic community, particularly for those artists who represent "new media arts" and make their living at least partly in connection with academic institutions. It's perhaps worth noting that it is fairly common for media artists to find their homes in academia, given the fact that the work is often by nature highly interdisciplinary and collaborative, involves significant research and development, and benefits hugely from access to other faculty, students, funding opportunities, and various institutional resources. While in the more established arts ending up in academia was often seen in rather negative light as indicative of a failed career, in the context of new media arts it's a very desirable and privileged position to occupy.

Arguably the overwhelming variable driving the game development community, from an organizational standpoint, is revenue. For the successful game designers, concern over market share trumps compelling content almost every time. The reasons for this, while frustrating to many in the industry, are understandable. Upwards of 90% of the profits are made from less than 10% of the product. Budgets for titles now commonly run into multiple millions of dollars. As Mark Cerny, founder of Cerny Games, points out: "Today's hit games routinely cost more than $10 million to produce and market, and the most expensive game cost an estimated $45 million. Five-man development teams such as the one that made Pac-Man are a thing of the past" (Kent, 2003). On top of escalating budgets and swelling production teams (that now commonly include concept designers, character designers, level designers, sound designers, 3D modelers, engine programmers, network programmers, database programmers, and on and on), development cycles frequently take two to three years. The result can be fairly stifling. As described in the Wikipedia:

> As businesses go, video game publishing is risky. The Christmas selling season accounts for about half of the industry's yearly sales of video and computer games, leading to a concentrated glut of high-quality competition every year in every game category, all in the fourth quarter of the year. Product slippage is very common due to the uncertain schedules of software development… There is a consensus in the industry that it has increasingly become more "hit driven" over the past decade, with masses of consumers buying the game that is best in quality and best-marketed in each game genre, and, by comparison, very few buying any other games in that genre. This has led to much larger game development budgets, as every game publisher tries to ensure that its game is #1 in its category. When publishing for game consoles, game publishers take on the burden of a great deal of inventory risk. All significant console manufacturers since Nintendo with its NES (1985) have required all publishers to pay a royalty for every game manufactured to run on their console. This royalty must be paid at the time of manufacturing, as opposed to royalty payments in almost all other industries, where royalties are paid upon actual sales of the product… So, if a game publisher orders one million copies of its

game, but half of them do not sell, the publisher has already paid the full console manufacturer royalty on one million copies of the game, and has to eat that cost (Wikipedia, 2004).

Given this it isn't too surprising that there is a growing lack of innovation in the development community. Type branding that emerges out of past successes leads to increasingly formulaic approaches across the board, and a culture of predictable mediocrity follows. It's not that anyone intends for that to happen, it's simply the natural fallout given the economic realities of the marketplace, and the need corporate survival. In many ways studio-driven Hollywood blockbuster filmmaking provides an appropriate model of where things have been heading. It soon becomes painfully obvious, particularly to those starry-eyed youth entering into the bigger development studios, that market pressure are the pistons propelling the corporate engine. This also fuels the tendency to take shortcuts wherever possible, reuse existing toolsets implemented for prior titles (sometimes a sensible strategy, sometimes not), and adopt a fairly restrictive utilitarian approach and attempt to capitalize in areas where there's a track record of success – hence the rather stunning repetition of genre, look and feel, game mechanics and gameplay.

Engines as Artifacts

The term "game engine" tends to refer to the software that renders to a screen everything you see and interact with in the game application that is written to run on the engine. Usually, though not necessarily always, it's assumed to be a 3D game. This is largely because the term came into popular use in the 1990s along with the advent of the first-person shooter genre. From this perspective game engines provide the rendering, the physics models, the collision detection, the networking, and much of the core functionality the player experiences during game play. Increasingly game developers are licensing third-party engines for title creation as opposed to coding engines on their own. This is partly due to the fact that it's extremely laborious to design and write an engine, and partly due to certain companies investing tremendous time and financial resources into their engine creation. The main engine providers, which are often also title developers, can make up to 40%-50% of their overall profit from engine licensing. This is perhaps not too surprising when a license can cost anywhere from a $250,000 to $750,000 US dollars. This trend in industry also begins to explain why so much of the content on the market looks so similar.

In other places I've argued that it's important to look at the game engine itself as a cultural artifact circulating within a specific social domain, in order to move beyond thinking of the game engine strictly in software engineering terms, and instead begin to think about it in social engineering terms (Nideffer, 2003). As I've indicated, my interest in doing this is to open up the possibility for exploring the ways in which people's ideological frameworks become constitutive elements of the game engine, all of which influence the way meaning making happens during the development of the infrastructure as well as the uses to which that infrastructure gets put, whether by players of a commercially developed title, or by artists attempting to repurpose those tools toward other ends. Thus the game engine becomes not simply a piece of software, but something that reflects and embodies the cultural conditions indexical to both the developers of the system, as well as the end users of that system.

More recently, tools that had been used exclusively by title developers are now being released to the general public in order to allow players to customize and/or radically modify their game environments. This is an extremely interesting move. Such creatively messing around within the confines of existing games – a.k.a. "modding" – has become a fairly widespread phenomenon within the videogame community. Game modding tends to consist of players who possess a facility for programming, and who create custom level maps, character skins, weapon types and tweak various other objects and items that are part of the game.

As veteran games programmer and author Jake Simpson points out, game mods came about from the editing programs that enabled gamers to modify the original .WAD files for Doom – basically files that contain all the information about the graphics, sound, level maps, etc. for the game – and supply their own home-brewed level designs and textures. Gamers started playing with these custom-built tools and found they too could produce levels that other people wanted to play. It wasn't long before game companies, notably ID software, noticed this trend and took it a stage further with the Quake series of engines, designing the game so that it was eminently user modifiable. ID even went so far as to release their own design tools, instructions, and code samples, so aspiring game programmers could tweak the Quake Universe (Simpson, 2002).

Accompanying the growing interest in these activities demonstrated by the players, it soon became apparent that providing easier access to such activity could potentially lead to greater revenue streams, as well as potentially interesting new game levels. Thus other companies soon followed suit, and started building modification tools into their own game titles in order to see what players would do, and to assess where future development efforts might be focused. Games like Doom, Quake, Unreal Tournament and Half-Life are all now able to bring out users' creativity by providing level editing, mod authoring, and server tools to players (Stonewall, 2000).

Given all of this, it is important to note that modding should not be confused with having access to the engine itself, as conventionally defined. Rather, it is working and playing at the level of the application written to run on the engine. It's a bit like giving your car a new coat of paint, or perhaps swapping in some different seats, but without ever really having the possibility of getting under the hood and messing with the mechanics that actually make the car run. It's also a little bit like the difference between media artists who use pre-existing applications to create and display their work (i.e., Internet Web browsers), and thus from a technology standpoint could be seen as working at a "surface" level, compared to those who program their own applications and protocols as part of their practice and hence could be seen as working at a deeper structural level.

Institutional Reproduction

Social theorist Anthony Giddens has persuasively described the dialectical relationship between human agency and social structure using what he terms "structuration theory" (1993). It is through patterned repetition of the acts of individual agents that social structure gets reproduced. This implies that there is a pre-existing social structure which agents enter into – traditions, institutions, moral codes, and established ways of doing things; but it also means that these can be changed when people start to ignore them, replace them, or reproduce them differently. However, what structuration doesn't tend to get at very well is the relative strength of institutionally patterned reproduction compared to the relative weakness of human agency to foment change within it.

There are of course key moments in history where through a combination of timing, charisma, and potency of action unique individuals have been able to play a major role in disrupting, if not outright transforming, structurally entrenched conditions, whether from within corporate culture, the fine arts, the social and natural sciences, or humanitarian arenas. But more often than not, if you were to chart out the human agency/social structure relationship, with social structure up top, and human agency at bottom, you'd see a big fat arrow of influence pointing down from structure to agency, and a tiny little thin one going back up in the other direction. It's far easier for agents to adopt the ideological frameworks embedded in powerful social and bureaucratic institutions than it is for those institutions to continually be rearticulated in relationship to individual human agency.

In a competitive corporate culture driven by bottom-line profit, escalating production budgets, swelling development teams, the need to quickly turn out titles, and the fear-factor of failure squelching a lot of creative ideas, it's expected that anything falling outside the immediate needs of the corporation is likely to be perceived as unimportant, if not outright undesirable. These conditions explain what recently happened at the 2004 Game Developers Conference (GDC), which for nearly 20 years has provided a forum for expert developers from around the world to share ideas, build skills, and learn about the latest tools and technologies. In a panel entitled "Towards Relevant Research: Collaboration 101" you get a number of the industry's most respected and prominent voices apparently agreeing that 'every time we see some goofy artwork it just reinforces and cements the perception of artists and academia as irrelevant to what we're doing' (Koster, 2004).

It also says something about why it took several attempts over several years to get a panel accepted at GDC (which finally happened at the 2004 conference) that showed the work contemporary artists were doing with the tools and technologies of the trade. Entitled the ArtModJam, (organized by and co-moderated with writer and game theorist and designer Celia Pearce), the ArtModJam brought to light a number of important issues, not the least of which was the deeply entrenched belief within the game development community that when you talk about game "art" you're talking exclusively about the in-game graphics (and possibly the early concept sketches) that players see during game play. Thus art becomes synonymous with pretty pictures, functioning solely as content provision plugged into an existing application framework sitting atop a pre-coded software infrastructure.

Artistic Realignments

As I've written about in other places (Nideffer, 2003), Berkeley sociologist Ann Swidler advanced the notion of "culture as a toolkit" in order to describe how individuals draw on cultural tools to solve problems and interpret their social worlds. According to Swidler there are any number of different cultural values and beliefs in an individual's cultural toolkit depending upon the various environments and experiences within which the individual is situated (Swidler, 1986). Game developers whose livelihoods depend upon success within the context of an increasingly competitive corporate culture draw on certain sets of tools, while conceptual artists whose livelihoods often depend upon doing things in unconventional and unexpected ways in effort to reframe how the world works draw upon different ones. Needless to say, what happened in the context of the ArtModJam presented a very different vision of "game art" than that which dominated GDC. Following are works largely from that venue, though it starts with a quick look back at some slightly earlier projects as well.

"Cracking the Maze," an exhibition curated in 1999 by media artist Anne-Marie Schleiner offers perhaps the earliest example of a coordinated show of contemporary artists doing interventionist game hacks. Cracking the Maze provided a brilliant and thematically coherent framework for beginning to establish game hacking, patching, and level modification as not only a timely and relevant artistic practice, but as a strategy for calling into question some of the latent ideological premises behind a commercial product that was already having such widespread social impact. As Schleiner writes in her curatorial preface:

> Considering the increasing popularity of computer games with younger generations, even at the expense of television, it seems perilous to ignore the spread of gaming culture. What sorts of spaces computer games construct, what sorts of gender-subject configurations operate in computer games, what sorts of politics of 'the other' computer games employ, what modes of interactivity and addiction computer games invite, how networked on-line games construct alternate worlds, how gaming culture manifests itself on the Internet--these are all areas ripe for investigation by cultural critics and manipulation by game hacker artists (Schleiner, 1998).

Cracking the Maze also was intended to draw attention to the ways in which the work methodologies game artists employ reflect the trend toward using technology in unintended and unpredictable ways:

> (T)he parasitic game patch is also a means to infiltrate gaming culture and to contribute to the formation of new configurations of game characters, game space and gameplay. Like the sampling rap MC, game hacker artists operate as culture hackers who manipulate existing techno-semiotic structures towards different ends or, as described by artist Brett Stalbaum, "who endeavor to get inside cultural systems and make them do things they were never intended to do" (Schleiner, 1998).

Innovating new technological forms has occasionally been an unintended consequence of this sort of creative approach to tool misuse and abuse. Turntables especially engineered by companies to facilitate and support what DJs had previously independently hacked them to do; as already discussed, game companies releasing titles that included tools to allow players to customize their gaming environments; the appropriation and reengineering of computer hardware, displays and input devices to use for gaming purposes as in the case of Spacewar (Nideffer, 2003; Nideffer, 2004); and the list could go on. The basic point is that creative misuse of technology has a long and fairly illustrious history, and artists have often been some of the most resourceful and able to function in that capacity.

One of the many excellent pieces in Cracking the Maze was by the artists' collective known as ®™ark (pronounced 'artmark'). ®™ark's contribution was the "SimCopter Hack," which was actually originally done several years earlier in 1996. The SimCopter Hack involved channeling $5000 from a New York shopkeeper to a Silicon Valley programmer who was strategically positioned, willing and able, to substitute hundreds of near-naked kissing boys for buxom babes, tuba players, and other items in the commercially released computer game. According to ®™ark, 80,000 copies of the game were released before discovery. The goal was to playfully and ironically utilize homoerotic imagery in a massively masculinist and militarist gaming context, in order to make a statement about the incredibly gendered workings of the gaming industry, as well as the often hidden assumptions and stereotypes reflected in mainstream culture that create the environment within which such titles can be produced and consumed as unproblematic.

Another powerful early example of an art collective reengineering a popular game in order to use it to comment upon a street culture discriminated against largely on the basis of racial identity is Mongrel's "Blacklash," done in 1998. In BlackLash you choose between four black stereotyped fighting characters, then slay your way to freedom through swarms of insectoid cops and Nazis. BlackLash is based on a combination of half-truths and hardcore reality coming from the point of view of a young black male trying to survive inner city life in the nineties. You choose one of the stereotyped characters as your own, and then proceed to battle the forces of evil that plot to eliminate you from the streets. BlackLash is a knock-off of knock-off of an early 1980s vector graphics game called Tempest, where you use a dial to maneuver an abstract geometry around different pseudo 3D planes, firing at various objects as they appear in the vanishing point on the horizon and begin moving toward you. In the BlackLash version, Mongrel swapped in imagery of white wigged judges, cops, hypodermic needles, Ku-Klux-Klan heads, Nazi spiders, and all sorts of odd things, streaming at you under the rumble of a rather disturbing soundtrack.

A clever critique of the ways in which private companies are becoming increasingly like nations unto themselves is Jason Huddy's "Los Disneys," completed in 1999. It's well known that Disney already owns theme parks and sports teams, as well as a retirement community in Florida. But if you want a real shock, check out their holdings summary in the footnote, included specifically because it provides excellent example of the ways in which an increasingly diversified corporate agenda can creep up unnoticed, extending its tentacles beyond recognition, until something as simple as an artist's game hack draws it to

attention.[1] In fact, if you look at the footnote you'll see that Disney, in ideological terms, let alone financial ones, is well on it's way to having far more influence than most nation states could ever dream of having. A rather frightening prospect, and one which Huddy's post-apocalyptic vision starts to address. In *Los Disneys* tourists attack with surveillance snapshots as oversize Mickey and Goofy characters stalk a post-apocalyptic future world where the Disney Corporation has completely taken over American real estate.

In an insightful critique of the manner by which advances in computer technology and 3D game engines have rendered many of their 2D pixelated progenitors obsolete, Martin Zapata authored "DMPacman" (1999). DMPacman is one of the earliest patches using the Unreal engine. For Zapata, the patch allows for newer games to emulate older ones, a kind of genre cannibalism that spawns new offspring to devour the historic 1980's 2-d maze game Pac-Man, transforming it into a 3-d Maze. Another early hack using a 3D engine was Sonya Roberts "Female Skin Pack Excerpts" (1999) - The original version of Quake included only a male 3D model. In order to play female characters, Quake "skinners" made female skins that mapped onto the standard male muscular figure, resulting in a number of strikingly tough frag queens, of which Sonya Roberts' examples are some of the best.

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[1] Publishing ventures include: Hyperion Books, Miramax Books, ABC Publishing Group, Disney Publishing, Inc., Financial Services and Medical Group, and Miller Publishing Company; magazine titles such as Automotive Industries, Biography (with GE and Hearst), Discover, Disney Adventures, Disney Magazine, ECN News, ESPN Magazine (distributed by Hearst), Family Fun, Institutional Investor, JCK, Kodin, Top Famille - French family magazine, US Weekly (50%), Video Business; the ABC Television Network; some ten other television stations including WLS Chicago, KTRK Houston, KABC Los Angeles, WABC New York City, WPVI Philadelphia, and KGO San Francisco; well over 60 radio stations; cable television stations including ABC Family, The Disney Channel, Toon Disney, SoapNet, ESPN Inc. (80% - Hearst Corporation owns the remaining 20%, also includes ESPN and ESPN2), ESPN News, ESPN Now, ESPN Extreme, Classic Sports Network, A&E Television (37.5%, with Hearst and GE), The History Channel (with Hearst and GE), Lifetime Television (50%, with Hearst), Lifetime Movie Network (50% with Hearst), and E! Entertainment (with Comcast and Liberty Media); and in terms of television production and distribution they control Buena Vista Television, Touchstone Television, Walt Disney Television, and Walt Disney Television Animation (has three wholly owned production facilities outside the United States - Japan, Australia, Canada); in movies the list includes Walt Disney Pictures, Touchstone Pictures, Hollywood Pictures, Caravan Pictures, Miramax Films, Buena Vista Home Video, Buena Vista Home Entertainment, and Buena Vista International. Internationally the Disney corporation controls The Disney Channel UK, The Disney Channel Taiwan, The Disney Channel Australia, The Disney Channel Malaysia, The Disney Channel France, The Disney Channel Middle East, The Disney Channel Italy, The Disney Channel Spain, ESPN INC. International Ventures, Sportsvision of Australia (25%), ESPN Brazil (50%), ESPN STAR (50%) - sports programming throughout Asia, Net STAR (33%) owners of The Sports Network of Canada, and is minority owner of Tele-Munchen - German television production and distribution, RTL-2 - German television production and distribution, Hamster Productions - French television production, TV Sport of France, Tesauro of Spain, Scandinavian Broadcasting System, and Japan Sports Channel; while in financial and retail Disney has partial interest in the Sid R. Bass crude and petroleum gas company, and owns and operates The Disney Store; in the multimedia sector in controls the ABC Internet Group, ABC.com, ABCNEWS.com, Oscar.com, Mr. Showbiz, Disney Online (web sites and content), Disney's Daily Blast, Disney.Com, Family.Com, ESPN Internet Group, ESPN.sportzone.com, Soccernet.com (60%), NBA.com, NASCAR.com, Skillgames, Wall of Sound, Go Network, Toysmart.com (majority stake - educational toys), and Disney Interactive (develops/markets computer software, video games, CD-ROMs). In music they control the Buena Vista Music Group, Hollywood Records (popular music and soundtracks for motion pictures), Lyric Street Records (Nashville based country music label), Mammoth Records (popular and alternative music label), and Walt Disney Records; in theater they control Walt Disney Theatrical Productions (productions include stage version of The Lion King, Beauty and the Beast, King David); and in professional sports they own Anaheim Sports, Inc. and the Mighty Ducks of Anaheim (National Hockey League); then of course there's the theme parks and resorts, including Disneyland - Anaheim, CA, Disney -MGM Studios, Disneyland Paris, Disney Regional Entertainment (entertainment and theme dining in metro areas), Disneyland Resort, Disney Vacation Club, Epcot, Magic Kingdom, Tokyo Disneyland (partial ownership), Walt Disney World - Orlando, FL, Disney's Animal Kingdom, Disney - MGM Studios, Walt Disney World Sports Complex (golf course, auto racing track and baseball complex), Disney Cruise Line, and The Disney Institute; finally, it also has partial investment in TiVo (Columbia Journalism Review, 2004).

IMAGE 01
Tomb Raider: 1999

The last of the early examples from Cracking the Maze is Tomb Raider (1999), authored by yours truly, and which consisted of a patched patch, a tweaked mail server, and an appropriated and reconditioned Web site. Tomb Raider was an oblique homage to Duchamp's hack of the Mona Lisa. I felt that Lara Croft represented a kind of modern day Mona Lisa, as she was repeatedly being referenced as the ultimate female form, though an unabashedly ass-kicking one, and her image was appearing everywhere from game ads, to billboards, to television and motion pictures. At the time, the most popular patch in the not-so underground gaming community was the "Nude Raider" patch, which removed what little clothes Lara wore in the game, and made her run around naked. My approach was to find that patch, reverse engineer it, and place censor bars over her "exposed regions," and make the Duchampian reference by marking her with a Van Dyke. I also decided to deliver the patched patch through a Website that, at the time, looked identical to the Eidos Website through which the actual Tomb Raider games were downloaded. Part of that site included the substantially altered "Lara's Fan Club" section where players registered to become members of Lara's international fanbase. In the fan club section was a Web form allowing members to submit what features they would like to see added to Lara. The form took that input and sent it to the Human Relations Director of Eidos UK as if it were coming from the Human Relations Director of Eidos US, and then thanked the submitter with a personal message that also appeared to come from the US HR director. Part of the goal was to frustrate the hyper-sexualized undercurrent manifest in Lara's fan base, while opening up otherwise highly constrained, if not entirely non-existent communication flows between media producers and marketers, and media consumers.

Beginning the ArtModJam were two groups of game artists working with 3D game engines to do level editing in the more conventional sense, technically speaking, though what got produced in both cases was highly unconventional. The first group consisted of Sky Frostenson, Eric Cho, Andrew Waer, and Joe Callahan. Executed in 2001, Graf War is a first-person shooter that combines graffiti sprays with bullets. Players attempt to evade anti-graffitti commandos trained to kill the spray-can wielding street artists on

sight. Graf War used the Half-Life engine, and was inspired by the State of California's 2001 initiative making vandalism a felony when damages exceed $400. The fallout of this legislation was that if a gaffiti artist was caught three times they could end up with a life in prison conviction under California's three strikes and you're out law.

IMAGE 02
Velvet Strike: 2002

Another work that utilized the idea of turning guns into devices that sprayed instead of killed is Anne-Marie Schleiner, Brody Condon and Joan Leandre's "Velvet Strike" (2002), shown in the 2004 Whitney Biennial. Velvet Strike allows players to join live versions of the wildly popular first person anti-terrorist shooter game Counter-Strike, but instead of shooting bullets players spray anti-war graffiti on the walls, ceilings and floors. Velvet-Strike was conceptualized during the beginning of Bush's War on Terrorism. One of the interesting features of Velvet Strike is that it allows players to post their own versions of graffiti for inclusion in the mod. Another interesting feature, though unintended, was the anger this overtly political move generated in the counter-strike gaming community, serving to exacerbate in many cases the already violent tendencies amongst players, seemingly to spite the anti-war moralists perceived to be invading their game space.

Mary Flanagan's "[domestic]" (2003) is a game modification that explores the childhood memory of a fire through a claustrophobic, spatial environment. [domestic] is created primarily of text fragments emerging out of and receding back into the walls, making the burning home function as a kind of a memory container for the tragic event. Players shoot what Flanagan refers to as "coping mechanisms" at the walls and at the growing fire within the space in order to contain it as it threatens to consume everything around it, including the player. As Flanagan states, her work investigates the ways space and memory are cognitively tied, and whether or not can such ties be re-experienced.

The last group of game artists who used existing tools to make level mods in a more traditional fashion, but to nontraditional ends, are Jeff Cole, Mike Caloud, and John Brennon, who as undergraduate students at the University of California San Diego made "9-11 Survivor" (2003) while taking Brody Condon's class on game art. In the "game," participants find themselves within one of the towers, trying to find an exit, only to discover that there is no way out. In a sense, the experience puts the participant in a first-person

viewpoint of the tragedy in a way that no other media – writing, photography, painting, etc. can. Beautifully rendered, it creates a silent and extremely eerie environment to "play" in. 9-11 Survivor generated a firestorm of controversy in the press soon after it was posted for downloading, primarily by those who either mistakenly saw it as an attempt to capitalize on a tragic national event (mistakenly because the mod was never intended to be offered for sale), or as an attempt to gain notoriety from at the expense of the continued suffering of those who lost loved ones. According to the authors, the mod was simply an attempt to reclaim the mediated spectacle of the attacks on the World Trade Center, although 9-11 Survivor does raise the question of at what point and in what context it becomes OK to capitalize on human suffering. There is certainly no shortage of commercially released game titles dealing with WWII for example, and to my knowledge none of them address the negative consequence of war from anything other than a US-centric perspective. Just take a look at the 14 or so WWII combat flight simulation genre titles from Microsoft alone for instance (YellowAirplane.com, 2004).

The relationship of gaming culture and war to nation building and nationalism is a theme Eddo Stern's "Shiek Attack" (2000) comments on in an extremely cogent and compelling fashion. It also raises issues around who gets to express their suffering, in what context, and at what cost. Stern is an artist, as well as a former Israeli soldier. In Shiek Attack he used material from the video games Settlers III, SimCity, Nuclear Strike, and Red Alert to compose as he described it "a contemporary non/fiction horror film woven from pop nostalgia, computer war games, the sweat of virtual commandos, the blood of Sheiks and a mis-remembrance of a long lost Zionist Utopia." Shiek Attack provides a series of vignettes to move the viewer through various historical phases, which could also be read, as described in *ArtForum* by Tim Griffin, as different "levels" in a game (Griffin, 2003). Part of what's so interesting with Shiek Attack is thinking about the game "play" required on Stern's part to orchestrate and capture the desired footage. It definitely shifts the typical understanding about how to approach a game. In this sense, Shiek Attack also represents an interesting prelude to what's now become known as machinima – the use of editing tools provided by commercial game engines to construct cinematic narratives played back either as videos, or inside the game space itself.

"Summons to Surrender" (2001), another conceptually compelling piece by Stern, works as a kind of quasi- or neo-situationist/dadaist intervention into massively multiuser online role-playing game (MMORPG) space. In Summons, Stern streams live 24 hour video surveillance of three main MMORPGs: Ultima Online, EverQuest and Asherons Call. What the video surveys are customized computer controlled sentinels (bots) that Stern builds and automates. To do this he registers and creates his game character. He then programs code to script the behavior of his sentinels in the online games. He also engineers hardware control devices, often displayed as parts of more elaborate sculptural installations, to mechanically manipulate frequently used in-game keystrokes on computer keyboards. To other players in the MMORPG, Stern's sentinels appear to be him actually playing the game. What soon happens however, given the extremely limited and repetitive nature of the sentinel behavior, is that players attempt to interact with the sentinel in order to assist it – usually because it's been walking into a wall or running in circles for hours or sometimes days on end. Stern then documents the social dynamics that emerge in this process. Summons to Surrender addresses in an extremely interesting way all sorts of issues around automation, human agency, artificial intelligence, role-play, and social interaction.

IMAGE 03
Tekken Torture Tournament: 2001

In "Tekken Torture Tournament," an artwork created by Stern in collaboration with Mark Allen (2001), willing participants got wired into a fighting system comprised of a modified Playstation running the popular game "Tekken 3." The custom engineered fighting system then converted virtual on screen damage into non-lethal yet nevertheless painful electric shocks. The device was especially designed to use electrical current to inhibit the motor movement of the player's arm used to manipulate the game controller. Eventually, as players neared death, the shocks became so intense that they were unable to control their arms any longer. Tekken Torture Tournament was done as a one-night "performance" event at the LA-based arts venue C-level. One of the things Tekken Torture Tournament accomplishes very effectively is a blurring of boundaries between virtuality and physicality. There is a tangible and highly embodied consequence to the actions performed by players in the game space; one that takes the "shock controller" metaphor marketed to sell console devices to a whole new level. It is only a matter of time before games incorporate all manner of sensorial feedback as part of their repertoire of possibility.

IMAGE 04
Waco Resurrection: 2003

Another great example of a game artwork that makes players somatically experience and embody the game space is "EndGames: Waco Resurrection" created by Eddo Stern, Peter Brinson, Mark Allen, and Brody Condon (2003), all members of the C-level art collective. In Waco, gamers enter the mind and form of a resurrected David Koresh. This is done through wearing custom headgear that is a literal hard-plastic mask of Koresh himself, and which allows for voice-activated control of Koresh's in-game character as he gets played. Waco is also multiplayer. As C-level explains, each player thus:

> becomes a Koresh, and must defend the Branch Davidian compound against internal intrigue, skeptical civilians, rival Koresh's and the inevitable advance of government agents. Ensnared in the custom "Koresh skin", players are bombarded with a soundstream of government "psy-ops", FBI negotiators, the voice of God and the persistent clamor of battle. Players voice messianic texts drawn from the book of revelation, wield a variety of weapons from the Mount Carmel cache and influence the behavior of both followers and opponents by radiating a charismatic aura. Waco Resurrection re-examines the clash of worldviews inherent in the 1993 conflict by asking players to assume the role of a resurrected "cult" leader in order to do divine battle against a crusading government (C-level, 2003).

IMAGE 05
DeResFX: 2003

In closing, another instance of game artists doing work that extends beyond the typical use of pre-defines toolsets and ventures into the less charted realm of structural reengineering is Brody Condon and Shih Chieh Huang's "DeResFX.Kill(KarmaPhysics < 5.0Amp)" completed in 2003. DeResFX.Kill involves custom electronics, found objects, and game engine modification (using the Unreal 2003 engine). DeResFX.Kill is an elaborate and incredibly impressive sculptural installation object that recently showed at the New Museum of Contemporary Art in New York as part of an excellent show entitled "Killer Instinct." Like many of the games mentioned, the piece forces a meditative and disturbing contemplation of death through the looping of game characters, seemingly infinitely reproduced, caught on screen in the throes of dying, surrounded by glowing neon blues, greens, pinks, and reds, electronics components, and all manner of beautifully arranged wires and circuits. Viewers movement towards the piece caused movement through a color field of floating bodies. Using a "karma physics" dynamic physics system, viewers could also cause seizures in the bodies, making them twitch and turn in what appears to be the throes of a gorgeously rendered agony.

IMAGE 06
650 Poly Carmack: 2004

Perhaps fittingly, the last work to mention is "650 polygon john carmack," also by Brody Condon (2004). The piece takes game engine creator and programming godhead John Carmack and places him into the Unreal virtual environment he built as an in-game character. Condon then brings him back out after reducing Carmack to 650 polygons, and "re-renders" him in physical space using milled foam, resin, and laser print technology. The end result cleverly and succinctly inverts the dominant tendency toward developing strategies for placing representations of player's "real" bodies into game environments by creating a materially re-embodied polygonal sculptural portraiture that moves fluidly and ironically between concept space, game space, and physical space.

Leveling Down

As I've asserted elsewhere in slightly modified form (Nideffer, 2003), it takes a lot of effort to cast light on the internalized dynamics motivating and enabling meaningful action in the world. But once those dynamics start getting revealed and creatively resituated, change becomes possible at both an individual level as well as an institutional one. Conceptually driven artists have been pretty effective at helping to develop tools and techniques that critically reflect upon and responsibly diversify an array of future possibilities, playing a key role in helping to illuminate the rules and regulations that govern our social lives. What we have here is really the first generation of media artists dealing with game culture and technology. Some are working primarily at the application level (though often this may be all that is needed to make a strong conceptual point), while others are beginning to move toward reworking at a deeper structural level, extending "modification" beyond simply doing level mods within existing games to things like hardware hacks of online environments, bringing virtual forms into physical sculpture and

large-scale installation settings, and retelling historic narratives through appropriation of commercial game titles.

New media art practice has been an important player in developing a critical vocabulary around game culture and technology through creative work, public exhibition, professional conferences, and for those institutionally located within academic settings, through exploration of alternative pedagogical approaches marshaled in the attempt to establish gaming studies as a legitimate academic discipline. Though often at odds with an industry where the primary reason for academic partnership revolves around gaining cultural legitimacy for what has been pretty heavily stigmatized work by being embraced within the context of the academy, and even more importantly to get the next generation of skilled bodies in the corporate door in order to assist with making new product. For this reason you see things like strong support coming from the game development community for those academic programs that are strictly trade and technically oriented, and lots of blank looks from CEOs and public relations types when they are told about the importance of cultural critique and the need for access to their product so that it can be creatively appropriated, hacked, reverse engineered, misused and abused in the context of the fine arts education and exhibition at the research university level.

This tension between the corporate "engine" of the game development community, and the more randomly distributed and chaotic "engine" of the game art community, starts to explain the cautious and often confused inclusion of contemporary art practice into professional venues like the Game Developers Conference. If there is a bridge to be built between the game development community and the art community, I would assert that it's less likely to happen with those who struggle to stay afloat by making games (i.e., the content providers) than it is with those who create the hardware and software infrastructure (i.e., the context providers) that runs the content. And the bottom line is, this is a good thing not only for artists wanting to work at a deeper level and create alternative frameworks for interaction and experience, but for enhancing the possibility of new technological forms.

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