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INSIDE: 2007 AUSTIN GDC SHOW PROGRAM

SEPTEMBER 2007

game developer

THE LEADING GAME INDUSTRY MAGAZINE

▶ **SAVE EARLY, SAVE OFTEN**

MAKING SAVE SYSTEMS FOR PLAYERS, NOT DESIGNERS

▶ **THE WILL TO FIGHT**

CHANGING GAME STATES IN PANDEMIC'S SABOTEUR

▶ **EXCLUSIVE INTERVIEW**

HARVEY SMITH ON POLITICS IN GAMES

POSTMORTEM:

INFINITE INTERACTIVE'S

PUZZLE QUEST



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POSTMORTEM

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Infinite Interactive took a leap into the console market with *PUZZLE QUEST*, after years of dedicated PC focus. The much more casual title tore up the charts, due to the incredibly long period of time the company took to polish it. CEO and lead designer Steve Fawkner takes us down the path that led these hardcore veterans to casual glory.

By Steve Fawkner

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Games are designed by designers, naturally, but they're not designed *for* designers. Save systems that intentionally limit the pick up and drop enjoyment of a game unnecessarily mar the player's experience. This case study of save systems sheds some light on what could be done better.

By David Sirlin

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Pandemic's upcoming title *SABOTEUR* uses dynamic color changes—from vibrant and full, to black and white film noir—to indicate the state of allied resistance in-game. It's art as gameplay feature in this unique look at the design and technical challenges of an in-progress high profile title.

By Christopher M. Hunt and Thomas French

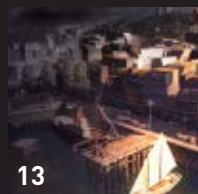
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BLACKSITE: AREA 51 began life as a rather straightforward first person shooter with aliens—then Midway Austin creative director Harvey Smith threw all that on its ear, adding a deeper story with a decidedly left-leaning political bent. In this interview, we discuss how to infuse political views into games without being heavy handed—while still making the game fun to play.

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SOCIAL GAMING HITS TARGET

WELCOME TO THE SEPTEMBER 2007 ISSUE OF *Game Developer* magazine. Firstly, let me explain the Austin GDC-related content that you can see nestled within this issue. This is the first year that the CMP Game Group (which operates *Game Developer* magazine and Gamasutra.com, as well as the Game Developers Conference series) is running the show in Austin, after taking it over in late 2006.

So the show organizers and this magazine's editors wanted to combine forces to inform both those attending the show and those who normally read *Game Developer* but weren't able to make it to the show in 2007. Thus, the special Austin-specific version of the magazine, which is given to all Austin GDC show attendees, has a special 'deluxe' version of the show guide bound into it. In addition, all subscription copies of this month's *Game Developer* have a version of the show guide, so you can see exactly what content, in what order, we offered this year.

A VIRTUAL WORLD ORDER

Something that we're seeing in the Austin GDC program—and which I find particularly exciting—is the way that games and online/social environments are swiftly blurring. For example, Sulka Haro, lead designer of HABB0 HOTEL, is presenting one of the keynotes at the show—and HABB0 really doesn't games as the main focus. But it does have social interaction, minigames, cute game-like graphics, and most of all, mass appeal.

In fact, I actually picked up a \$10 card for HABB0 at my local Target store, allowing me to redeem and spend 50 credits in the game, and I'm looking forward to trying it out and "pimping my room" in the process. What does this show? That low-cost customizability and social interaction are great draws for both games and online environments (or, if you have to, "virtual worlds").

Leigh Alexander at Game Developer Research's WorldsInMotion.biz blog recently looked at HABB0 for the Online World Atlas we're building, and she described a model that the site has been running for years, but that all game developers should take very close note of:

"HABB0 is free to access, but the whole works runs on the economy of Habbo Credits. There is some limited free content—free chat rooms, four free games and basic customization and animation for avatars—but most of the content, like furniture (furni to denizens), accessories and popular games, requires credits, which can be

purchased at twenty cents a piece. Players can also trade credits and furni among themselves. Credits also can be used to pay the monthly cost of optional membership (30 a month) to the Habbo Club, which allows access to even more exclusive items and VIP chat rooms. Members earn badges of honor for subscribing to the club for various lengths of time. HABB0 also earns revenue through sponsors, like Sunkist Orange, who advertise in-world."

Now, to be fair, this isn't really that different from what many MMOs are doing. But what I get most excited about is the dip-in, dip-out nature of these types of titles. Again, I may be preaching to the converted, but I think a perfect length for game sessions has been found, with the swift rise of 'casual gaming', and it's significantly shorter than most people reading this magazine are used to. And by combining multiple sets of smaller payments, you can make more money than selling a game at \$60, over time. Not that it's the death of the blockbuster filmic game, but it's the rise of something completely different.

UP WITH THE PROLETARIAT

Finally, I wanted to address a couple of comments we received about the Business Level column in the June-July 2007 issue of *Game Developer*. Ironically, the cover story itself for that issue was all about Quality Of Life, with a very (to my mind) even-handed article following up EA Spouse, complete with interviews with the 'spouse' herself, Erin Hoffman, Electronic Arts representatives, and game attorney Tom Buscaglia, among others.

However, we've since taken a close look at the Business Level column from Stephen Smith and Lisa Weinberger of Greenberg Glusker, which dealt with California employment issues for those employing game professionals—specifically based around overtime. While the points the duo make in it are sound legally, it was unfortunately phrased to sound like an 'overtime payment avoidance' piece, and as such, the magazine editors were in hindsight unhappy with it—it's written from an overly corporate and insufficiently human-facing angle. We'll be ensuring it doesn't happen again, and any similar pieces are written from a more evenhanded perspective. ❖

S!

Simon Carless, publisher

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■ *Meilin Wong, Developer, Crystal Dynamics*



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EMERGING TECHNOLOGIES AT SIGGRAPH

THE SIGGRAPH 2007 EMERGING TECHNOLOGIES EXHIBIT

featured innovative technological breakthroughs in areas as diverse as displays, haptics, robotics, input devices, interaction techniques, audio, speech, and biotechnology. The exhibit is a cornucopia of science fiction come-to-life, and often provides clues as to the look of tomorrow's technological landscape. A number of the technologies on display at this year's event in San Diego had interesting ties to the game industry—here are some of the more notable ones:

ARTICLE BY BRAD KANE. PHOTOGRAPHS BY GENA RABINOWITZ.



◀ GRIMAGE

Any object placed within Grimage's 3-foot cube was instantly modeled and mapped into a 3D world on a nearby screen - no spatial markers needed - and registered as a collision object. In the demo, users could essentially stick their hand (or any other object) into the virtual world and begin manipulating a virtual jack-in-the-box.



▲ FREQTRIC

The Freqtric game controllers look like old-school NES gamepads, only with an electrical conducting silver backing that allows the system to register hand contact between two players. A DANCE DANCE REVOLUTION-type demo included a "high five move" that registered hand contact between players one and two, and a simple platform game in which one player could be brought back to life by 100 consecutive hand slaps from his teammate.

▶ VIDEO AGENTS

In this interactive cyberspace environment, users interact with autonomous agents generated from video images of real-world people. The demo was amusing - multiple copies of the system's creator and his friends walked and bounced around a virtual living room, each behaving differently and responding to objects placed into the environment. It's clearly only a matter of time before we can populate game worlds with people from our lives.



CONSOLE IGNORANCE

CONSUMERS OFTEN UNAWARE OF HARDWARE FEATURES

A NEW NPDP GROUP STUDY ANALYZING

attitudes, usage and purchase intent of next-gen gaming systems has found "significant gaps" in user awareness of functional features outside of video game play, with the results "more pronounced" on some

systems than others.

The report, titled "Next Gen Functionality & Usage," revealed that marketing efforts intended to educate consumers about console functionality that extends beyond gaming appear to be hit-or-miss in

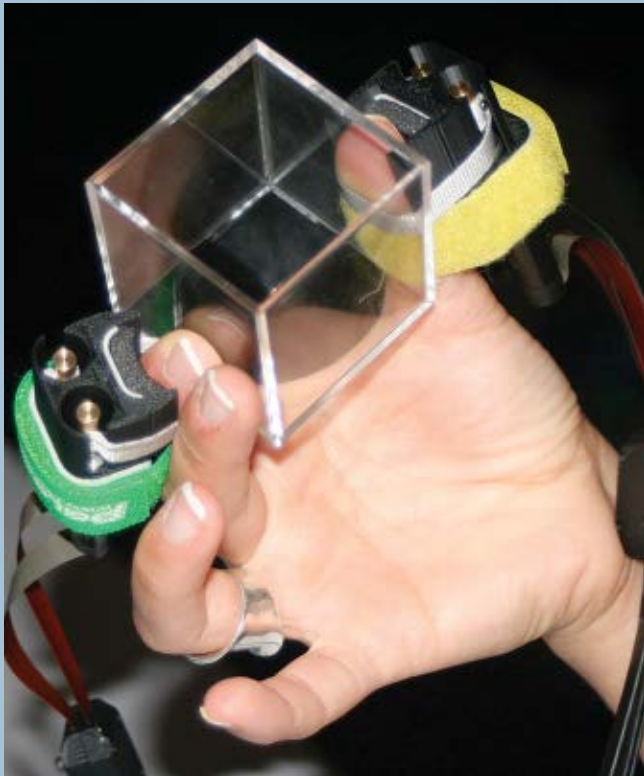
their efficacy. For example, the study showed that PlayStation 3 owners download additional content as often as do owners of Xbox 360s—but the majority of PS3 owners are unaware that it's even possible.

The study also measured backward

compatibility—71 percent of PS3 owners and likely purchasers rated backward compatibility as the most important PS3 function, but only 31 percent are aware that that functionality even exists on the system.

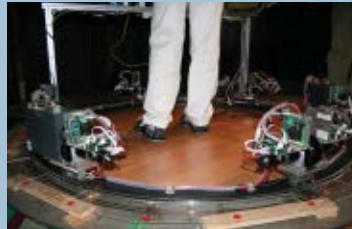
The same kinds of trends, says the study, can also be seen in different areas (varying by system) such as ability to link to portable systems and Internet connection via gaming device.

Other study findings showed that



◀ GRAVITY GRABBER

This haptic device consists of two finger cuffs holding a clear glass cube, and delivers weight sensations of virtual objects based on spatial algorithms. (The idea is that fingertip deformation is a decent substitute for actual weight.) In the demo, players used the device to move a ball through a 3D-maze by sensing its changing weight



◀ STRING WALKER

This wearable interface resembles a pair of sandals, with eight attached strings actuated by motor-pulley mechanisms mounted on a turntable. Users can walk in place and yet maintain

their position relative to the room, allowing for the sensation of walking while in a projected 3D environment.



▲ E INK

The paper-thin digital displays being developed by E Ink work via electronic black and white pigmentation. This is already a reality for readers of E-Books, but it will be a while before a digital newspaper hits the marketplace en masse. How relevant is this to the games industry? Let's just say it's only a matter of time before you're reading Game Developer from the crinkled-up digital display you keep in your shirt pocket.



◀ SOAP

Simple yet interesting, this small soft object (resembling a bar of soap) is a unified mouse and mousepad that can be operated in mid-air. Useful for any software application you might want to run from your couch or kitchen - e.g. games. This is no replacement for your Wii controller, but an interesting interface concept nonetheless.



the Wii's motion-sensing controls are rated as the most important feature, indicating high awareness ratings—but that Wii owners are also interested in

more "basic" features like Internet connectivity and backward compatibility with the GameCube, demonstrating that to some users new features act as supplements, rather than replacements, to older ones.

The survey also analyzed user awareness surrounding portable systems, and found that current owners and likely purchasers of PSPs are most aware (52 percent) that they can watch movies and videos. Music playback and photo viewing are in second and third

place at 49 and 43 percent, respectively. As for DS users and likely purchasers, 57 percent are aware there is a touch-screen, 53 percent know about the dual-screen, and 49 percent are aware of stylus function.

Other functions, the study said, also favored one system over another; it says DS users are more likely to play wirelessly with friends than PSP users, and 360 users are more likely to play online with friends than PS3 users.

—Leigh Alexander

CALENDAR

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SAVING THE DAY

SAVE SYSTEMS IN GAMES

DAVID SIRLIN is a game designer and author. He recently rebalanced Capcom's *PUZZLE FIGHTER* and is currently working on *STREET FIGHTER HD* for Backbone Entertainment. He is also author of the book *Playing to Win*. Email him at dsirlin@gdmag.com.

>> I ONCE HEARD PETER MOLYNEUX SAY THAT DURING THE development of *POPULOUS* he didn't want the player to be able to pause the game. His reasoning was that *POPULOUS* is a world that goes on with or without the player. Luckily, his friends talked him out of it, pointing out that sometimes the doorbell rings, the phone rings, or the baby cries.

Games are not for game designers and their ivory-tower ideals—games are for players. Players have lives outside of our games and we should respect those lives and design our games accordingly, rather than expect our players to design their lives around us. Players should be able to save anytime they want, or more precisely, they should be able to stop playing your game anytime without losing their meaningful progress.

This is an old argument where one side talks about the convenience of saving anytime and the other talks about the need to make games challenging, but this is a false dichotomy. We can allow the player to stop playing without excessive penalty and make a challenging game. It's just a matter of defining what "saving" actually means.

As an example, *MARIO 64* doesn't literally allow the player to save anywhere they want, but it still meets this requirement in spirit. The point of the game is to collect all 120 stars, and every time you collect a star, you "save and continue." You



If the player dies in *DEAD RISING*, they are faced with a difficult choice: start from the beginning, or lose experience and weapons earned since their last save.

isn't needed anyway. The geography of the game is designed such that a player can reach the entrance to any level in just a few seconds by navigating Mario's castle and getting back to any specific goal in a level doesn't take long either. This preserves the game's difficulty (players can't save and load to get the stars more easily) and it also means the player can turn the game off at any time, knowing that the only important progress (collecting stars) has been saved.

SAVE POINT, CHECKPOINT

GOD OF WAR 1 and *2* and *RESIDENT EVIL 4* all use the same save system, which is also common in many other games. They all have save points and check points. Save points let players save their progress and load it later. Check points are sprinkled invisibly between save points and if they die, they go back to the last checkpoint rather than all the way back to the last save point. This system isn't too bad, but it doesn't do a good job of letting the player save and quit at any time, either. It would make more sense if the player could pause the game at any time and save progress up to the last checkpoint. I'm not suggesting that the player should be able to take a step, save, fire a shot, save—just that he or she should be able to stop playing the game and resume from the last checkpoint. After all, that would happen anyway through dying.

Why separate save points from check points in the first place? I think the answer is for technical reasons rather than design reasons. *GOD OF WAR* was designed for the PlayStation 2 and *RESIDENT EVIL 4* originally appeared on the GameCube (and later on PlayStation 2 and Wii). These consoles take a few seconds to write a save to the memory card, so doing this every time the designers wanted a checkpoint would probably have been too annoying to the player. This led to spread out save points and the addition of check points for convenience's sake. In the future, we won't have these technical restrictions.

GEARS OF WAR was designed for the Xbox 360, a system capable of writing a save file quickly. *GEARS OF WAR*'s save

system is a definite improvement over *GOD OF WAR*'s and *RESIDENT EVIL*'s: The player can play through the entire game without having worry about finding save points, but can also quit playing at any time and automatically start at the most recent checkpoint. *GEARS OF WAR* does this by having many checkpoints, all of which automatically save progress without any action required from the player. This example well-illustrates the false dichotomy I mentioned earlier. The save system is both very convenient and does not interfere with the difficulty of the game. In fact, *GEARS OF WAR* could be tuned to be arbitrarily difficult without sacrificing any convenience in its save system.

MULTIPLAYER

Save systems get a little trickier in cooperative multiplayer games. Players expect to be able to join a friend's game and leave at any time, and to save and continue their progress later without the game's save system getting in the way. *GEARS OF WAR* does a great job here too, allowing a friend to join an in-progress game at any time (taking over the AI for the character named Dom). The player can get through a couple of chapters alone, then have a friend join who can leave at any time and pick it up again later. Even if the friend is new to the game, they're still allowed to join someone who's playing the last level, because *GEARS OF WAR* is trying to be as convenient to the player as possible. One hitch is that when the friend leaves, the player must briefly quit the game then restart it from the same checkpoint. On this matter, *LEGO STAR WARS* has *GEARS OF WAR* beat because it allows a friend to seamlessly join or leave a game without ever quitting out to a menu screen.

Playing *GEARS OF WAR* with a friend is easier than playing alone (there are no AI adjustments between coop and single player), but it could have been incredibly difficult had the designers wanted it to be. The save system's flexibility doesn't prohibit difficulty. That said, if you were really serious as a designer about creating a meaningful leaderboard for single player and



Unreal® Technology News

by Mark Rein, Epic Games, Inc.

Canadian-born Mark Rein is Vice President and Co-Founder of Epic Games based in Cary, North Carolina. Epic's Unreal Engine 3 has won Game Developer Magazine's Frontline Award for Best Game Engine for the past three years and Epic was recently awarded Best Studio at the Spike TV Video Game Awards. Epic recently shipped Gears of War, which won Gamespot's overall Game of the Year and broke Xbox 360 sales records. Epic is currently working on the Unreal Tournament 3 for publisher Midway.

Upcoming Epic Attended Events:

GDC China
Shanghai, China
August 27-29, 2007

Tokyo Game Show
Game Connection
Makuhari Messe, Japan
September 20-22, 2007

Lyon GDC
Game Connection
Le Palais des Congrès de Lyon
December 4-6, 2007

GDC 2008
San Francisco, CA
February 18-22, 2008

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GAMESPY JOINS IPP

IGN Entertainment's GameSpy has joined join Epic's Integrated Partners Program and will incorporate their suite of industry leading online technologies into Epic's Unreal® Engine 3. Gamespy's technology will be immediately available to any publishers or developers that license Unreal® Engine 3.

By incorporating GameSpy's online technology into Unreal Engine 3, the two companies have created an integrated one-stop solution for game developers looking to leverage the world's most advanced multi-player technology and game engine in one package. The partnership will span both the PC and PLAYSTATION®3 platforms within Unreal Engine 3, enabling seamless PLAYSTATION®3 and PC online functionality. Functionality available to Unreal Engine 3 licensees via Gamespy will include cross-platform gameplay, communication tools and competition applications.

"Epic and the Unreal Engine 3 are on the leading edge of next-generation and multi-platform gaming, and we are very pleased to join the Integrated Partners Program. GameSpy is committed to working together with Epic to address a broad range of needs for the connected gamer, including multiplayer matchmaking, in-game and out-of-game player messaging, persistent player communities, and competition systems," said Jamie Berger, senior vice president of consumer products and technology for IGN Entertainment. "Over the past months we have fully integrated a broad suite of GameSpy online technology in Unreal Engine 3 and have built a fantastic working relationship with Epic. We look forward to extending that relationship with a number of new technologies customized for Unreal Engine 3 to be introduced over the next 12 months."

By making available many leading community tools and technologies, GameSpy will provide game developers with the opportunity to have PLAYSTATION®3 and PC users play, communicate and compete together as a single community.

TRAGNARION AND STAR VAULT ARE NEW UE3 LICENSEES

Malloca Spain-based **Tragnarion Studios** has licensed Unreal Engine 3 for their upcoming game

known as The Scourge Project. According to the release "Carl Jones, head of Tragnarion Studios, made the decision to use Unreal Engine 3 after finding that the technology lived up to the high ambitions of the Tragnarion team" and that "Every single feature we want is easily implemented in Unreal - for all the major high-end platforms."

Swedish game developer **Star Vault** has chosen to license Unreal Engine 3 for the creation of their upcoming MMO game and according to their CEO they are taking MMORPGs "to the next level both in player features and in visual contents by using the most powerful game engine, Unreal Engine 3".

MORE E3 SUCCESS GREETES UNREAL LICENSEES

The results for the E3 Critics Choice Awards are in and two Unreal Engine powered games combined to win three of these most prestigious awards. Congratulations to 2K Games Boston (formerly Irrational Games) on winning BEST ACTION/ADVENTURE GAME for



Chair Entertainment's Undertow wins IGN's Best Xbox Live Arcade Game of E3 2007

Bioshock. A demo of Bioshock is now available Xbox Live Marketplace and the title should be in stores by the time you read this. In addition Bioshock is winning incredible reviews. Game Informer and IGN.com both gave Bioshock 10/10 scores and PC Gamer UK awarded Bioshock a stunning 95%. Congratulations also to Bioware who won BEST ROLE PLAYING GAME and BEST CONSOLE GAME for Mass Effect. This is the second year in a row Mass Effect has won for Best Role Playing Game and we're

anxiously looking forward to its release soon!

Chair Entertainment also deserves our hearty congratulations for walking away with IGN's BEST XBOX LIVE ARCADE GAME for Undertow. According to IGN "It's original, perfect for short or long gaming sessions, and is built around the multiplayer online experience. Plus it looks gorgeous for a game that is only 50MB in size, likely thanks to the fact that the game is running on the Unreal Engine 3."



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co-op play (GEARS OF WAR doesn't do this), then you'd need a single player mode where no one can ever join in, and a co-op mode where the two players are set from the start and can never switch out. This would be highly annoying, so it should only be used as a hardcore leaderboard mode inside a game that also offers a more forgiving system.

MASSIVE SAVES

In massively multiplayer online games things get even trickier still. On the plus side, players can log out at almost any moment they want in these games, and their character's progress (such as items or experience points) will be saved. In WORLD OF WARCRAFT, players can't log out while "in combat," and must wait



GEARS OF WAR's save system allows players to jump in and out of co-op mode—but they must return to a menu first.

20 seconds when they do want to log out, but it's pretty player-friendly overall. There's even a hearthstone that lets players teleport back a city (once per hour) so they can end their play session at almost any time with character progress saved. What's much harder to save is progress on a quest or in a dungeon. If a group of four friends is halfway through a three-hour dungeon, one could log out, but it's socially unacceptable, and that player won't be able to continue their progress in that dungeon later. This is a worse problem during raids, where 25 people must coordinate their real-life schedules, and the ability to log off at any time is basically gone.

Blizzard has taken some steps to simulate the kind of save points seen in offline games, though. The Scarlet Monastery dungeon starts in an ante-room with four separate portals leading to four different wings. This allows players to play just one fourth of the total experience, stop, and come back later. Also, the Mauradon dungeon gives players an item half way through that allows them to teleport back to the half way point, so they can continue their journey later. Blizzard added even more winged dungeons and pseudo-save points half way through dungeons in the recent BURNING CRUSADE expansion. Players welcomed these changes as they make the game much more convenient, though they still fall somewhat short. A single player game with save points more than an hour apart would be considered lacking, but at least Blizzard is moving in the right direction here. There is opportunity in the MMO genre to be even more friendly to players' real life schedules.

OUTLIERS

Let's return to single player games and look at two unusual examples: DEAD RISING (Xbox 360) and CASTLEVANIA: DAWN OF SORROW (Nintendo DS). DEAD RISING has save points, but no check points. The open-ended nature of the game makes it very easy to forget to save at all, especially considering that the save points are off the beaten path inside the various bathrooms of the shopping mall where the game takes place.

When players die in DEAD RISING, they are given a confusing choice: they can restart from their last save point, losing all character progress since they last saved, or keep their character's progress, but lose all save points. Yes, you read that right. If a player wants to keep their character's progress since the last save (such as experience points gained and moves learned) then they must restart the entire game from the opening cut-scene. Even stranger, DEAD RISING only allows a single save slot per Xbox 360 profile, per storage device. That means the game is trying its hardest to restrict people into playing the game only the way the designer wants, while still remaining easily defeatable if one makes a new profile or uses another memory card. By "defeatable," I mean this grants users the ability to create two save files, a feature common to almost all games.

The reasoning behind these decisions in DEAD RISING was probably to create a very specific experience for the player. They are supposed to care about finding those save points, and care that they are in constant danger from zombies and that if they die, the last save point was a really long time ago so it's going to be a big deal. The world is against the player—as it almost always is in the horror genre—and so the game's difficulty is intentionally very hard. If the player keeps playing through the game and dying and starting over, they'll start each time with a stronger character and with more knowledge of how to navigate the game correctly and save the various victims from the zombies. Incidentally, this same save system was used in the game BREATH OF FIRE: DRAGON QUARTER, which was also by Capcom and is rumored to share some team members with DEAD RISING.

I understand why a designer might create a save system like this that reinforces the concepts of the horror genre, but games are not meant to satisfy game designer ideals, they are for players. I was personally annoyed by this system to the point of quitting, because I could not play it the way I wanted. DEAD RISING is an amazing technological showcase and combines the design concepts of a sandbox game (go wherever you want, do whatever you want) with the horror theme of a mall overrun by zombies. And yet, I'm not allowed even two save slots, I'm bullied into playing the same parts over and over because I feel obligated to restart all the time, and the save points require me to actively seek them out, which means it's very easy to play for an hour or so and forget to save, then die. That type of save system may work for hardcore players (who border on sadomasochism anyway), but the fictional Little Jimmy from Idaho (the person I often design for) is just going to quit playing out of frustration. I know I did.

On the other hand, CASTLEVANIA: DAWN OF SORROW has an unusual save feature that is intended specifically for the player's convenience, rather than for the designer's vision. This



The archaic save system in *NEW SUPER MARIO BROS.* unnecessarily limits the player's enjoyment.

game has standard fixed-location save points (with no check points) and it also has a second method of saving called a save marker. Players can pause the game at any time and create a save marker, and then the game quits to the title screen. When they want to play again, they can either load a game that was saved at a save point or they can resume from their last save marker. The tricky part is that if they resume play through either method, then the save marker is destroyed. That means if the player is in the middle of a boss fight, they can save, stop playing, play something else, then later resume from the exact moment they saved. But players cannot reduce the game's difficulty with this feature because it does not give them a second chance of any kind. This is another example where the game can remain very challenging, and yet still allow the player to save and quit at any time. This same save system was also used by *FIRE EMBLEM* (Game Boy Advance) except you didn't even need to pause and create a save marker. It was automatically created for you any time you turned the Game Boy off during gameplay.

NEW MARIO, OLD TRICK

One of the most surprisingly bad save systems of recent times comes from an otherwise wonderful game: *NEW SUPER MARIO BROS.* (Nintendo DS). It would have been very natural in this game to allow the player to save at any time on the map screen between levels. Instead, the player must beat either the castle at the end of a world or the

tower halfway through the world in order to save. For example, in World 2 this means beating a minimum of five levels before reaching a save point. Players can also spend their hard-earned star coins to buy a powerup from various mushroom houses which also lets them save, but they very well might not want to spend their coins.

The need to keep the player at arm's length from the ability to save is conspicuous here given the traditions of the genre (*MARIO 64* did much better) and doubly-so considering this is a handheld game. Surely the concern wasn't about keeping the game challenging, because *NSMB* lavishes the player with extra lives the whole way through. My girlfriend once asked if she could play *NINTENDOGS* on our DS, and I had to explain to her that no, she couldn't, because I just spent almost an hour collecting nine star coins and didn't reach a save point yet so I had to leave the DS in sleep mode until I could save. I'm not sure which game designer sensibility this restriction on saving serves, or why it would ever be more important than allowing my girlfriend to play with her virtual dog.

NSMB really stands alone here. The most incredible part is that when you beat the game, you unlock the ability to save anytime you want on the map screen! This proves that no technical limitation made the save system the way it was. The convenience of saving anytime was deliberately withheld from the player, and given as a reward at the end. As designers, we can't do this, and must instead put the real lives of our players ahead of our game designery ideals.

SAVING FOR THE PLAYER

A save system should allow the player to stop playing at any time, allow the player to pick up where he or she left off with as close to zero replaying as possible, and save as automatically and seamlessly as possible, so the player will not forget to do it.

Saving should be treated as one of the player's natural rights, not an earned privilege or a game mechanic around which to make strategic decisions. The design space we have to create new games is so unthinkable large that we lose virtually nothing by restricting ourselves to designs with friendly save game systems that don't presume to override the real-life needs of players. As I have shown, this does not even require a tradeoff with game difficulty, even difficult games can have convenient save systems.

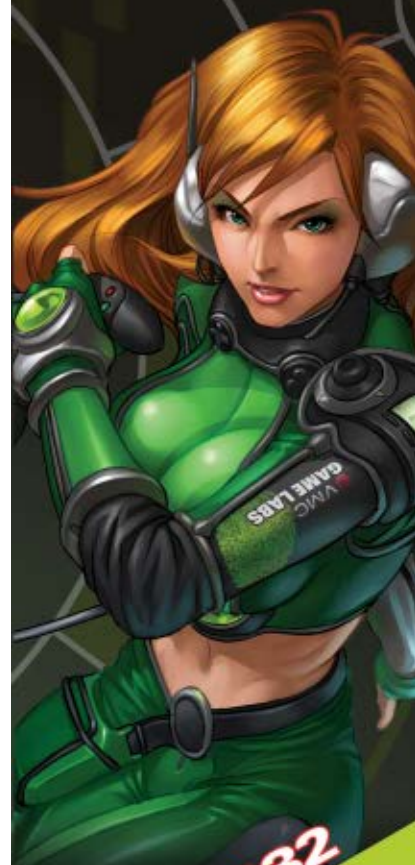
We should always try to design a save system that simply serves its purpose and fades into the background, otherwise we might end up like *NEW SUPER MARIO BROS.*—a game with sales of over 10 million units worldwide, and with ten million girlfriends unable to play *NINTENDOGS*. ❌

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SABOTEUR: THE WILL TO FIGHT

SUCKING THE LIFE OUT OF THE CITY OF LIGHTS

» **WILL TO FIGHT IS A FILM NOIR MECHANIC IN OUR** stealth action game **SABOTEUR**, which is currently in development and due out in 2008 (platforms currently unannounced). The game takes place during World War II, and Will to Fight transforms colorful Paris, the city of lights, into a black-and-white setting when the Nazis occupy it. The player can restore the city to life, literally bringing the color back into the world through his or her actions. This article discusses the key design and art challenges we faced in developing Will to Fight, as well as the solutions we implemented to bring this core feature into the game.

When we first began kicking around ideas for **SABOTEUR**, we knew we wanted to build on the foundation laid by prior Pandemic games like **MERCENARIES** and **DESTROY ALL HUMANS!**, continuing the “go anywhere, do anything” nature of sandbox-style games. And despite setting **SABOTEUR** smack-dab in the middle of the 1940s, we didn’t want to join the already-flooded WWII shooter market.

The story within **SABOTEUR** is a personal account of one man caught inside the giant war machine making a difference. War is more as a backdrop, similar to its role in the *Indiana*

Jones movies. With these goals in mind, we set to work designing the gameplay and establishing the visual direction. Will to Fight was one of the earliest mechanics that drove the development of the game.

COMING TO A COLOR-RICH DESIGN

Initially before we came up with the idea of using color to represent a change in state, we envisioned Will to Fight in five different weather stages representing an increase in the landscape’s vitality and a decrease in its occupation. Early in developing **SABOTEUR**, we divided Paris into several districts and gave each its own Will to Fight level. Missions were to work in a deliberate, lockstep fashion, increasing each area’s Will to Fight level in stages and thus slowly transforming it, while at the same time taking care not to allow any area’s state to get too far ahead of those in neighboring areas (mainly to avoid potential technical problems).

To pull the concept together and make it gel for the player, we thought about matching each area’s state to a corresponding weather condition, ranging from gray and dreary

CHRISTOPHER M. HUNT is an art director on **SABOTEUR** at Pandemic Studios, and **THOMAS FRENCH** is the lead designer. Email them at cmhunt@gdmag.com.

SABOTEUR: THE WILL TO FIGHT

weather while in occupation (low) to blue skies and warm sunshine of hope (high).

Inherent in the phrase "Will to Fight" is a nod to the resistance movement. In low Will to Fight areas, there would be no resistance at all. As the Will to Fight degree rose, however, the resistance forces would gradually make their way into the world to fight the Nazis, until, at the highest level, the Nazis would be driven out entirely.

We built a prototype street using the original MERCENARIES engine, which had the ability to create fantastic localized regions with their own distinct atmospheric effects. The problem we found was that weather alone didn't feel like enough to pull together the feeling of an occupied world. Even worse, having more resistance fighting as the Will to Fight increased made the game feel more like a war zone, not less, and hence more

delicate game structure that made it impossible to move missions around or even cut them altogether. Middle stages were too subtle and offered little payoff for the player. Puzzling out the specific AI differences between stages became an enormous headache and caused behavior distinctions that, like those of the visual elements, failed to register with the player. In addition, free-play missions couldn't accommodate big Will to Fight changes because we were limited in the quantity of stages and wanted to save larger changes for story missions.

To solve these problems, we decided to keep what worked best in the system: the bookends of low (black-and-white) and high (full color) Will to Fight. The visual distinction between these two stages was obvious and easy to spot, making the other differences between them more transparent to the player.

Transitions would be more dramatic and meaningful. For the

design team, this simplification eliminated most of the restrictions of working with the system. Now we could create little pockets of Will to Fight wherever we saw fit based on the needs of story missions or free-play events. Missions were now free to be moved around or cut without upsetting the delicate balance of our overall game structure.

COMPLEMENTARY ELEMENTS

Story progression. The overarching story of the game is integral to the player's total progression as he goes about raising the Will to Fight level. Mission completion and free-play changes the individual pockets of the world, and when the player changes enough pockets, more story missions unlock.

Another benefit of Will to Fight is that the player can visualize his or her general progress simply by climbing to a high vantage point and looking around. It becomes immediately apparent where in the world the saboteur still has work to do, as the goal is to liberate all the districts.

Resistance support. The underground French resistance plays a key role in the fantasy of the world we're creating. Although our hero character is primarily focused on his personal motivations for fighting Nazis, along the way he spends a great deal of time working with the

resistance as a means to achieve his own goals.

As the hero inspires pockets of the world, the strength of the resistance grows. When the player gets caught up in a fight in high Will to Fight areas, Parisians who once scattered at the slightest sign of trouble now do what they can to aid the hero. The player can also call upon the resistance in times of need by signaling to people in the world.

Occupation. In SABOTEUR, an occupied world is a dangerous one. One of the unique aspects of our game world is that the Nazis serve not only as the main antagonists but also as the policing force. The increased Nazi presence on the streets of a low Will to Fight area forces the player to make choices about how and where he or she chooses to move through the world. In addition to the number of Nazi soldiers in the low Will to Fight areas, Nazi elements such as towers with search lights, barbed



Low Will to Fight Concept
in Occupied France

occupied than liberated. That's definitely not what we were aiming for.

Rather than scrap the concept completely, we went back to the drawing board. As we envisioned the colorful world of France captured in movies like *Amélie* and *A Very Long Engagement*, it occurred to us that the best way to illustrate that life and spirit of Paris being snuffed out by the Nazi occupation was literally to suck the color out of the game world. A black-and-white look would instantly identify low Will to Fight areas to the player and would unmistakably represent occupation.

MULTI-STAGE GAMEPLAY

As we continued to beat on the Will to Fight system, we found our major problems tended to emerge from its multi-stage nature. The complicated, lockstep design of the system forced a

wire, and other tools of occupation restrict movement in certain areas, like rooftops.

Raising the Will to Fight thins out the general Nazi populace of the area and removes the heavy occupational elements, making it easier for the player to move through various areas.

Supplies. Raising the Will to Fight in some pockets unlocks the player's access to supply locations. Once one of them is open, the player has a remote location to reequip with weapons, explosives, and other devices that were unlocked throughout the game, saving the player the hassle of having to run back to a resistance headquarters to stock up on items.

ARTISTIC INSPIRATION FROM THE FILM WORLD

The first order of business for the art department was to create the visual language for the Will to Fight. The team gathered every possible reference: movies, television shows, the work of famous photographers, games, classic paintings, and scores of images of France. Using these materials, we tried to define the boundaries for artistic style within the scope of the Will to Fight game design and choose visual targets to match its (originally) five stages. Each stage had its own visual theme that would be layered on top of the next as the player progressed, and every stage would have a unique variety of evolving elements such as lighting, atmospheric effects, character animation, and variations of 3D assets.

Choosing the color schemes for the "liberated" Will to Fight stages was easy. The hard part was deciding on the right monochromatic look for the occupied Will to fight stages. After lengthy discussions, we decided to drop the monochromatic color scheme in favor of true black-and-white. While our initial inspiration came from a few classic films, such as

Casablanca, we ultimately gravitated toward film noir. One modern movie that particularly inspired us was *Sin City*, which illustrated how far one could push the use of black-and-white as a stylistic choice.

A crucial element in developing the Will to Fight was generating vast amounts of concept art. When we started, there

was no technology available in the engine to support our ideas, so we had to rely on 2D concepts and 3D mock-ups. The concept artists created scenes for everything from lighting color keys—experimenting with Will to Fight stages for different times of day and night—to beautiful countryside châteaux occupied by Nazi forces. The artists tried to include as many ways that the Will to Fight might affect the environment as possible. This was instrumental in developing the technology for our tools sets and helped everyone on the team visualize the Will to Fight.

FIRST LOOK

Our first target for getting the Will to Fight up and running in the game was a behind-closed-doors demo at E3 2006. We began with a combination of full-screen filter effects and concentrated on the style for the lowest and highest stages of Will to Fight.

Graphic engineers exposed a set of the in-game controls to enable the artists to manipulate the effects in real time. The resulting visual effect blew away everyone who saw the demo. We now realized we were definitely moving in the right conceptual direction, but the fidelity still had a long way to go.



We learned three major lessons from this first attempt. First, the Will to Fight mechanic could not rely primarily on filter effects. The player needed to see more changes in the environment to properly understand the difference in stages. Players needed to see major physical indications of occupation in conjunction with the change in the effect. Second, having an

SABOTEUR: THE WILL TO FIGHT

adequate tool chain is essential. The art department needed better control over color variations, bloom, lights, and, most importantly, the sky. The filters were created in such a way that they diluted many of the real-time shader effects on our assets, such as specular and normal maps. Thus, we had inadvertently sacrificed everything that makes artwork look next-gen in pursuit of the look we wanted. Third, Will to Fight levels must be assigned to regions, not the entire world. Raising the Will to Fight is a mission-based function, so it's logical for it to only affect certain areas—but we had no tools to support this mechanic. Furthermore, we had to create a solution for viewing multiple Will to Fight stages simultaneously.

CHALLENGES MOVING FORWARD

With the lessons we learned from our first pass, we went about refining the entire system. As the design team reexamined the five-stage conception of Will to Fight, the art team grappled with its own issues with the original concept. The problem was, if you multiply the number of stages by four different times of day (morning, noon, afternoon, and night), you end up with 24 different art states to maintain and balance, which was simply too unwieldy.

We decided to avoid this potentially disastrous situation by removing the middle stages and keeping just the low and high



Will to Fight states. Yet, all the pre-production work for the middle stages was not lost—they turned out to be useful as visual transition states for how the world should look between the high and low states.

Now that we had just two Will to Fight stages (occupied and liberated, or low and high), the main challenge at hand was handling the transitions between them in an open world. Previously, the entire screen changed based on gameplay events, and the player was only able to see one Will to Fight stage at a time. Moving forward, we implemented a spatial-based system that opened the view to the occupied and liberated areas at the same time. A few elements are still only relative to the player, such as the sky, weather, and certain light features that are specific to low Will to Fight, and these occur when the player moves to and from one Will to Fight to another.

Over the last few months, the team has worked out a lot of the issues we identified after our first pass on Will to Fight. However, we're not done yet, and there are still a host of cool features in the pipeline, including weather effects such as rain, sleet, and wind. We also have put a high priority on more atmospheric effects, including fog, smoke, dust, and special particles to work dynamically with Will to Fight. These features will integrate seamlessly with Will to Fight state changes, regardless of the time of day.

PULLING IT ALL TOGETHER

It took us a great deal of work to get the Will to Fight mechanic to its present state, but nailing the general look of the mechanic was a major achievement for SABOTEUR. To Pandemic and the SABOTEUR team, Will to Fight is something that gives our game a strong and singular identity in the crowded game marketplace. When you see a screenshot of SABOTEUR, you know it's a screenshot of SABOTEUR.

While some individual aspects of Will to Fight may have been utilized before in other games, we're confident the synthesis of all the elements discussed here gives our game something truly unique, something we believe will influence not only future projects created here at Pandemic, but others elsewhere in the industry. ✖

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The Road to Austin....

has been an amazing journey for the entire Austin GDC team. Since acquiring the conference last year, we have been focusing on preserving the event's character and sense of community, and working hard to offer you a compelling show.



Through the Online Games Track, we're keeping the online games focus trained on MMO development, with a powerhouse lineup of massively multiplayer online game speakers including Mike Morhaime. And with Habbo Hotel's Sulka Haro, we're also looking into the rich territory of virtual worlds and casual games.

The formerly co-located writing conference and game audio conference are now two unique and compelling tracks: the Game Audio and Writing Tracks. Through these venues, we are excited to feature such well known industry experts like Lee Sheldon and Brian Schmidt.

The conference also features international content with a unique focus on both cultural and business perspectives, with keynotes from Hiromichi Tanaka and Minho Kim. In addition to these renowned speakers, we are thrilled to have so many experts leading discussions on the most pressing topics for MMO and online game development, audio for games, and writing for games.

Most importantly, this year's Austin GDC is a celebration of the people in the game development community. Be sure to engage with the speakers and topics featured in the People's Choice track as you and your colleagues are responsible for selecting and programming these talks. Austin GDC is your conference, and we are pleased that you have embraced it so fully through this new initiative.

Special thanks goes out to the Austin GDC's Advisory Board (see pages 2-3), who from start to finish committed to making this show one of the best and served as a clear voice for game developers. On the following pages you will see the results of their tireless efforts. We are lucky to have them!



Without further ado, I want to thank you for coming.

Enjoy the show!

Izora de Lillard
Conference Manager



Conference-at-a-Glance

9:30-10am	10-10:30am	10:30-11am	11-11:30am	11:30am-12pm	12-12:30pm	12:30-1pm	1-1:30pm	1:30-2pm	2-2:30pm	2:30-3pm	3-3:30pm	3:30-4pm	4-4:30pm	4:30-5pm	5-5:30pm	5:30-6pm	6-6:30pm																
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Keynote 9:30-10:30am Michael Morhaim (Ballroom A) Lee Sheldon (Ballroom B)		Sessions 10:30am-5:30pm		 break			Keynote 1:30-2:30pm Brian Schmidt		break		break		Sessions 10:30am-5:30pm			Evening Event 5:30pm ▶																
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Game Career Seminar 9:30am-4pm					GAME CAREER SEMINAR					Game Career Seminar 9:30am-4pm																							
Registration 10:30am - 8pm																	SATURDAY • September 8, 2007																
 WIGI (Women in Games International) 11am-5pm																	 Wigi 11am-5pm																

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Rich Vogel—*Online Games*
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Corey Bridges
ONLINE GAMES CO-CHAIR
Co-founder, Executive Producer and Marketing Director, Multiverse

Corey oversees game development teams ranging from garage to Fortune 100 levels. With marketing experience from Netflix, Netscape, Zone Labs, Borland and The Discovery Channel, Corey has built and launched a number of world-class technology platforms. An award-winning writer, he has also collaborated with well-known technology expert John Dvorak on multiple books.



Randy Buck
GAME AUDIO
Audio Director, Midway Studios Austin

I found the audio path through playing in bands—leading to a venture as an independent post-production service and then to 15 years in game development. In game development, I'm able to apply all of my audio experience and to challenge myself to evolve my skills on a daily basis. It's just like playing in a band—only with forty people instead of four.



Billy Cain
ONLINE GAMES
VP Development / Geek, Critical Mass Interactive, Inc.

Billy Cain has worked on many games over his 15 year career for such game companies as Electronic Arts, Sony, and THQ. He is co-owner of Critical Mass Interactive, a world-class game developer and outsourcer. He has spoken at many conferences and universities and sits on advisory boards for the education of students about how to get into the videogame industry. Check out more at www.criticalmassinteractive.com



Lev Chapelsky
WRITING FOR GAMES
Co-Founder and GM, Blindlight Studios

Lev Chapelsky is a founding partner and General Manager for Hollywood-based Blindlight, providing game producers with consultative advice on working with outsourced talent and production resources. Blindlight's core service disciplines include story development, scriptwriting, celebrity acquisition, and voiceover production. Blindlight's projects include HALO, SPLINTER CELL, THE ELDER SCROLLS series, STAR TREK, CSI, OPEN SEASON, and SONIC THE HEDGEHOG.



Richard Dansky
WRITING FOR GAMES
Manager of Design/Writer, Red Storm Entertainment

Richard Dansky has worked on SPLINTER CELL: DOUBLE AGENT, RED STEEL, and FAR CRY and the RAINBOW SIX and GHOST RECON series. His published work includes role-playing game books for White Wolf as well as short fiction, literary criticism, book and music reviews, and a now-defunct column in a Korean-language video game magazine. His new novel *Firefly Rain* is due out shortly.



Matt Firor
ONLINE GAMES
President, ZeniMax Online Studio(s)

Firor is a 20 year veteran of online game development. Prior to ZeniMax Online, he worked ten years at Mythic Entertainment, which he co-founded, as producer on DARK AGE OF CAMELOT among other projects. When he left Mythic in 2006, Firor was VP of Product Development for all projects. Before joining ZeniMax he founded Ultra Mega Games, providing consulting to the online games industry.



Dana Fos
WRITING FOR GAMES CHAIR
User Experience Manager, Microsoft Game Studios

Dana Fos started as Editor in Microsoft's games group in 1993. She is now a Microsoft Game Studios User Experience Manager. She works with developers on story development, scriptwriting, user interfaces, voiceover, and localization, as well as on designing and implementing the processes and tools. Her objective is to see game writing rise to the same level of excellence as art, design, and other disciplines.



Craig Fryar
ONLINE GAMES
VP Business Development Producer, Online Alchemy

Craig has been involved in videogames since 1992. At Apple Computer he seeded the industry with technology and design guidelines resulting in large-scale growth in MacOS consumer markets. He also launched Peninsula Gameworks and co-developed SPECTRE. In the mid-90's at Interplay Productions he created specialty versions of hits like DESCENT for OEM computer markets. He has since produced various software and hardware.



Bryan Howell
WRITING FOR GAMES
Writer, Lucasarts

Bryan Howell started at Microsoft Game Studios as a creative writer in 2000. He joined LucasArts as a Writer/Designer in 2006. Bryan has collaborated with numerous development houses, including Big Huge Games, Digital Illusions CE AB, Silicon Knights, Curly Monsters, and Petroglyph. Bryan is currently working on the LucasArts upcoming INDIANA JONES title.



Daniel James
ONLINE GAMES
Founder and CEO, Three Rings

Daniel is founder and CEO of Three Rings, a San Francisco developer and operator of massively multi-player online games for the mass-market casual audience. PUZZLE PIRATES and BANG! HOWDY are Three Rings' titles. Prior to Three Rings Daniel consulted on game design, toiled for many years on MIDDLE-EARTH ONLINE, and co-founded two profitable UK internet startups, Avalon and Sense Internet.



Linda Law
GAME AUDIO
Vice President, The Fat Man

Another engineer who left for the arts... For the last 15 years Linda has worked at The Fat Man as both a business and project manager. In 1996 she co-founded Project Bar-B-Q, the interactive audio think-tank, and helped launch the game design solution workshop Project Horseshoe in 2006. She plays the bass almost competently and will surely shoot you a look if you ask her to solo.



Jessica Mulligan
ONLINE GAMES
Executive Producer for Online Games, Sunflowers GmbH in Germany

Jessica Mulligan is an online game professional with executive and management experience at NevraX (SAGA OF RYZOM), Turbine (ASHERON'S CALL), EA (ULTIMA ONLINE), and MM3D (MIDDLE EARTH ONLINE). She has also worked at National Videotex and Interplay Productions in management positions. A respected author and commentator on online games, Jessica is the co-author of *Developing Online Games: An Insider's Guide*.



Advisory Board



Dave Murrant
GAME AUDIO
Director of Service Groups, Sony Computer Entertainment America

Dave manages the music, sound, cinematic, motion capture and multimedia groups within Sony. Dave, originally from the UK, is a 15+ year veteran of the video game industry and has worked on an array of games on all platforms. At Sony, Dave worked on all of the major franchises, including SOCOM, GOD OF WAR, SYMPHON FILTER, MLB, NBA, ATV, JAK AND DAXTER.



Susan O'Connor
WRITING FOR GAMES
Game Writer, Susan O'Connor Writing Studio

Since 1998 Susan O'Connor has been writing stories for games for Activision, Atari, Epic Games, Irrational Games, Microsoft, Midway, SOE, THQ, Ubisoft, and others. Susan's portfolio features titles in a variety of genres, including first-person shooters, RTS titles, action-adventure games, RPGs, and MMOs. She has recently finished writing for GEARS OF WAR (Epic Games/Microsoft) and is currently working on BIOSHOCK (Irrational/2K).



Cory Ondrejka
ONLINE GAMES
Chief Technology Officer, Linden Lab

As CTO, Cory Ondrejka leads Linden Lab's SECOND LIFE team that creates the technologies that enable collaborative, atomistic creation, including distributed physical simulation, 3D streaming, customizable avatars and in-world editors. Prior to joining Linden Lab in 2000, Ondrejka served as Project Leader for Pacific Coast Power and Light, where he brought the ROAD RASH franchise to the Nintendo for the first time.



George Alistair Sanger
GAME AUDIO
Music and Sound Design for Games, The Fat Man

The Fat Man, George Alistair Sanger, has been creating music and other audio for games since THIN ICE for Intellivision in 1983, which means that, with only one known exception, he has been in that business longer than anybody. And he's exceptionally wordy, so his bio is really far too long to print here—look it up online.



Marc Schaeffgen
GAME AUDIO CHAIR
Studio Audio Director, Midway Studios Austin

Marc Schaeffgen has been kicking around the industry for sixteen years, co-founding Midian, an audio production company specializing in game scores and sound design, then moving to Iguana Entertainment (later Acclaim Studios), and Inevitable Entertainment. With Midway's acquisition of the studio in 2004 the Midway Studios Austin audio team continues to grow and forge ahead into the challenges of next generation console audio development.



Matt Scibilia
ONLINE GAMES
President/CEO, Critical Mass Interactive, Inc.

Matt Scibilia has been in the industry for over seventeen years, working for such companies as Microprose (now Atari), Magnet Interactive (now AKQA), Electronic Arts/Origin Systems, Eclipse Entertainment and Daylight/KalistoUSA, before co-founding BigSky Interactive. He co-founded Critical Mass Interactive, Inc. in 2003. Some recent products CMI has contributed to include UOLIVE!, TABULA RASA, THE OUTFIT, JAWS UNLEASHED and TURNING POINT: FALL OF LIBERTY.



Scott Selfon
GAME AUDIO
Senior Audio Specialist, Microsoft XNA Developer Connection (XDC)

As Senior Audio Specialist in Microsoft's XNA Developer Connection (XDC) group, Scott assists composers, sound designers, and audio programmers with technical and creative implementation issues in their Xbox and Windows titles. He has played an active role in the development of the Microsoft Cross-Platform Audio Creation Tool (XACT). He is the co-author of *DirectX Audio Exposed: Interactive Audio Development*.



Lori Solomon
GAME AUDIO
Marketing Manager, Dolby Laboratories

In her role as game marketing manager, Lori Solomon evangelizes Dolby technologies throughout the game community. She is responsible for connecting with game developers, publishers, tools and middleware companies to create co-promotional programs. Since joining Dolby Laboratories in 1996, Lori has launched programs with many publishers, including Electronic Arts, Activision and Ubisoft. She also oversees the company's gaming trade shows and events.



Michael Steele
ONLINE GAMES
VP & GM, Live Game Services, Emergent Game Technologies

Prior to joining Emergent, Michael consulted to game developers and publishers of massively multiplayer online subscription services, specializing in the practical analysis of online games, identifying the effects of social networks, communities and other emergent phenomena. He has also held executive and management positions at Ubisoft's online division, ubi.com, Turbine, Hasbro/Microprose, and Disney Online.



Matt Tullis
GAME AUDIO
Product Manager, Games, Dolby Laboratories

Matt manages the development of new technologies, tools, and services for the game market for Dolby in North America. Previously he worked with game developers to implement Dolby technologies in a variety of games on various platforms, including Dolby Digital on the PS3, Xbox 360, Xbox and PC, as well as Dolby Pro Logic II on the PS2, GameCube and Wii.



Rich Vogel
ONLINE GAMES
Co-Studio Director, BioWare Austin

Rich Vogel has been doing game development for 15 years. As Senior Producer of MERIDIAN 59, he helped launch and run the live service, which he also did at Origin. In 2000, Rich joined SOE and founded the Austin Studio. He shipped STAR WARS GALAXIES in 2003. Rich speaks frequently on issues of online world design, online development process, and online community management.



Gordon Walton
ONLINE GAMES CO-CHAIR
Co-Studio Director, BioWare Austin

Gordon Walton has been in game development since 1977. Before joining BioWare Austin, he was VP/Executive Producer and Studio Manager at Sony Online Entertainment in Austin, and has had executive roles at EA/Maxis, Origin, and Kesmai Studios. Gordon has owned two development companies and was development manager for both Three-Sixty Pacific and Konami. Gordon speaks regularly at industry gatherings.



Featured Speakers



ONLINE GAMES KEYNOTE

How to Rule the World (of WARCRAFT): Ten Lessons

Mike Morhaime, President and Co-founder, Blizzard Entertainment

With 9 million subscribers worldwide, the world's most popular massively multiplayer online game has more "citizens" than Switzerland, and is potentially as complex to administrate. In this business-focused keynote, Morhaime shares ten lessons learned from the challenges of globalizing a single IP.

Mike Morhaime co-founded Blizzard in 1991 and has overseen Blizzard's transformation into a global enterprise with offices in North America, Asia, and Europe, and more than 2000 employees worldwide. Additionally, Morhaime has served on the Vivendi Games executive committee for the past eight years, and served as executive producer on WORLD OF WARCRAFT®.



DESIGN KEYNOTE

Fostering Open-Ended Play: Unleashing the Creative Community

Sulka Haro, Lead Designer, Sulake Corporation

Sulake's globally operated virtual world HABBO attracts millions of teenagers every month. Most of the users participate in the world's economy of acquiring virtual property through micro-transactions. The session describes the processes and principles used to design the product to support open play and end user creativity, with concrete examples of user activity and changes the service has gone through during the seven years of HABBO's existence.

Sulka Haro is the Lead Designer for Sulake Corporation's virtual world HABBO. Sulka has been involved in building HABBO from the very early days, having joined Sulake back in 2001 when the company only had 10 employees. With over 12 years of experience working in multimedia, games and online projects, he's been involved in projects ranging from mobile phone product launch websites to HABBO's 50+ million user online communities.



INTERNATIONAL KEYNOTE

Designing for Global Entertainment: Launching FINAL FANTASY XI on Multiple Platforms

Hiromichi Tanaka, Executive Officer, Square Enix

Hiromichi Tanaka addresses the challenges of cross-platform design to entertain and engage the different styles of both PC and console MMO players by offering a design post-mortem on the ambitious and successful title, FINAL FANTASY XI. He details the problems encountered and offers solutions implemented by the team, going into both the initial approach to design as well as the adjustments made along the way, and finally into what the team learned in testing and Beta.

Hiromichi Tanaka joined Square Enix (formerly SQUARE Co., Ltd.) in 1982 as one of its original members. In his role, Tanaka helped lay the foundation for the company and personally worked on FINAL FANTASY, FINAL FANTASY II and FINAL FANTASY III, as well as SECRET OF MANA, XENOGEARS, and CHRONO CROSS. Currently, Tanaka serves as the producer of FINAL FANTASY XI, managing every aspect of the design process, balancing heavy social interaction with the immersive experience.



GAME AUDIO KEYNOTE

"No More Excuses: Time for Great Game Audio!"

Brian Schmidt, Program Manager, Xbox Audio and Media

"Sound designers and composers get no respect. There are no good tools. I'm a musician, not an engineer." We've all heard these in the talks, roundtables, and likely the bars at GDC or elsewhere. Or we've found ourselves saying these things ourselves. This talk focuses on how designers can create great audio despite, and perhaps even because of those limitations.

At Xbox, Brian was responsible for bringing interactive Dolby® Digital to video gaming, setting a new bar for game audio. He is also the primary architect of the Xbox Audio Creation Tool (XACT) and is responsible for the design of the Xbox 360 audio system. As a composer, he has personally composed music for over 120 interactive games, including JOHN MADDEN FOOTBALL, JURASSIC PARK, and the STAR WARS TRILOGY, as well as composing the award-winning music for CRUE BALL.



WRITING FOR GAMES KEYNOTE

Writing for Games Keynote: Magic, Madness and the Muse

Lee Sheldon, Assistant Professor, Department of Telecommunications, Indiana University

The magic of words. The madness of production. The care and stroking of she who would bestow inspiration. Once ordered to rewrite a script thirteen times because he resembled the tennis court contractor who had moved into his boss' dream house with his boss' wife, Lee will present an interactive survival guide for videogame writers and those who hire them. Refreshments and justice will be served.

Lee Sheldon has written and designed 18 video games including massively multiplayer worlds for companies such as Cyan (URU: AGES BEYOND MYST) and Disney (DISNEY'S VIRTUAL KINGDOM) Before working in videogames Lee wrote and produced over 200 popular television shows, including Star Trek: The Next Generation and Charlie's Angels. Lee is currently a professor at Indiana University where in addition to teaching he is working on four more virtual worlds, writing and designing his fourth AGATHA CHRISTIE videogame, and writing his third book.



KEYNOTE CATEGORY HERE

Coming to America: Nexon's Micro-transaction Revolution

Minho Kim, Director of Game Operations, Nexon America

Nexon pioneered the item-selling model for online games in the 90's, and developed it to great success in games like MAPLESTORY and KART RIDER. In this detailed keynote presentation, Min Kim will detail the North American rollout of MAPLESTORY to reveal how Nexon has responded to new opportunities in the market, absorbed challenges from hacking, fraudulent billing, and others to bring micro-transactions to North America. The talk will end with a glimpse into Nexon's future plans for expanding their business and driving innovation.

Min is a director of Nexon America responsible for business development initiatives and game operations of Nexon published titles in the US. His current professional and personal goal is the successful adoption of the item-selling business model in the US. Prior to joining Nexon America, Min operated the launch of the Global Edition of MAPLESTORY as the VP of Global Business Development at Wizet Corp. Min started as a senior associate of business development at Nexon Corporation pursuing opportunities such as a social networking service, a board game business, and online game licensing.



SPOTLIGHT Q&A SESSION

Spotlight Q&A Session: When Did (You) Last Level Up? Career Advice from an Industry Veteran

Open to Expo Pass holders and Game Career Seminar attendees

Dave Perry

Founder, GameConsultants.com and Gameinvestors.com

Jamil Moledina

Executive Director, GDC





Sessions

GAME AUDIO

WEDNESDAY, SEPTEMBER 5

HDR Audio - Adaptive Prioritized Mixing in Frostbite

David Mollerstedt, Stefan Strandberg
9:30-10:30am/60-minute Lecture/Room 3

HDR Audio is a technology for selecting and mixing sound sources in real-time. The talk describes the HDR Audio implementation in the Frostbite engine. Examples from BATTLEFIELD: BAD COMPANY and design demos from the Frostbite editor demonstrates how this works in real life.

What is "Next-Gen" and What the Heck Are We Doing About It?

Tracy W. Bush, Alistair Hirst, Gene (Robert) Semel, Brian Schmidt, Jeffrey Wesevich

11am-12pm/60-minute Panel/Room 3

This session is meant to allow the audio leads, designers and programmers to sit down together and put some form into the much-discussed, but frustratingly nebulous term, "next-gen audio..." The goal is to discuss where the infamous "bar" is now and where it's likely to be going over the next couple years.

When Audio IS the Experience: Games for the Visually Impaired

Michelle Hinn, Richard Van Tol
3-4pm/60-minute Lecture/Room 3

This session discusses gaming for the visually impaired and the relevance of this field for mainstream games. The session will include examples of games played by visually impaired gamers as well as design tips for game audio designers and game designers from the IGDA Game Accessibility SIG.

THURSDAY, SEPTEMBER 6

Righteous Game Audio

Charles Robinson
11am-12pm/60-minute Lecture/Room 3

This lecture presents an in-depth look at the audio signal path from asset creation to game-time audio playback. Common pitfalls and often overlooked errors in signal handling will be described. The presentation will include some signal processing theory and audio samples to explain and demonstrate the underlying principles.

Audio for GUILD WARS

Alistair Hirst
1:30-2:30pm/60-minute Lecture/Room 3

This presentation will cover the approach to sound design for GUILD WARS, including the combat, creatures and spell sounds. It will also go into depth on how the challenge of keeping data size small is overcome through the powerful and flexible scripting system, and the audio pipeline.

How Broadband Phones Will Affect Mobile Game Audio

Peter Drescher
3-4pm/60-minute Lecture/Room 3

This session examines how massive portable storage and speedy data transfer rates will affect interactive audio for mobile devices in general, and mobile game soundtracks in particular. The author presents an overview of the current state of the art, then discusses new cell phone features that are about to come to market.

SPONSORED SESSION What's Beyond 5.1?

John Griffin
4:30-5:30pm/60-minute Sponsored Session/Room 3

Dolby® Digital surround sound defines the audio experience in gaming today. What does the future hold? How will Dolby audio technologies impact games today and tomorrow? In this session we will discuss new Dolby technologies that can improve the audio in your games.

FRIDAY, SEPTEMBER 7

Introducing the Interactive XMF Standard for Interactive Audio

Chris Grigg
9:30-10:30am/60-minute Lecture/Room 3

iXMF is the first non-proprietary standard for interactive audio content, recently produced by the IASIG. Project technical lead Chris Grigg explains how iXMF technology works, and how it benefits the game development team... especially the audio artists, the game designer, the engine designer... and the accountant.

Creating a New Age of VO in Games

DB Cooper, Patrick Fraley
11am-12pm/60-minute Lecture/Room 3

Audio directors have a right to know what to expect from the voice actors that are hired to voice games. The object of this program is to discuss and demonstrate directing techniques actors can easily respond to, scripting that will bring a fuller character from your actor, and audition ideas to ascertain that you're getting the VO you really need for a part in a game.



Truly Original Melodies For Game Music: Use Your Head To Escape Your Head

Gerard Marino
1:30-2:30pm/60-minute Lecture/Room 5

This lecture outlines techniques and strategies to both harness the power of the musical unconscious, and to free oneself from it, using examples from the scores of GOD OF WAR I and II. The focus is on creative conceptualization, with technical facility and gear playing supporting roles.

Working Toward Next-Gen Sound Design: GRAW2 MP

Justin Drust, Francis Dyer, Matt McCallus, Jeffrey Wesevich
1:30-3pm/ 90-minute Lecture/Room 3

This session will demonstrate the sound design and technology behind the Xbox 360 online component of GHOST RECON ADVANCED WARFIGHTER 2. Presented by both sound designers and programmers, the talk will focus on their efforts to lay the foundation for a truly "Next Gen" audio treatment. This lecture is a 90 minute session.

ONLINE GAMES BUSINESS AND MANAGEMENT

WEDNESDAY, SEPTEMBER 5

Emerging Business Models Worldwide

Brian Green, Jessica Mulligan
11am-12pm/60-minute Lecture/ Room 1

This lecture will comprehensively consider various business models for online games, assessing areas of success and identifying opportunities for growth on a global scale.



From Austin to Washington: Politics and Videogames

Steve Augustino
11am-12pm/60-minute Panel/Room 5

Videogames have hit the big time, and so have the political issues that they face. The game industry is increasingly finding itself in the middle of Washington debates. This session will explore these issues and the relationship between the video gaming industry and Washington, and what future effects can be predicted.



Sessions

Business Lessons for Post-WOW Games

Gordon Walton

1:30-2:30pm/60-minute Lecture/Room 1

This session will cover the conventional wisdom lessons that Blizzard's WOW proved out, along with some new lessons that can be derived from their amazing success. There will be a discussion of what market opportunities might exist in this post-WOW world followed by an extensive Q&A session.

Bend Microsoft Project to Your Will

Mike McShaffry

3-4pm/60-minute Lecture/Room 1

This lecture will show tricks in Microsoft Project learned over ten years of consistent use. Attendees will see how to organize their schedules, learn the difference between using priorities and links, how to schedule milestones, understand how to use custom working schedules, and see how to enter extra data into their schedules to keep everything in order.

How to Get Your Games into China

Lisa Cosmas Hanson, Monte Singman

4:30-5:30pm/60-minute Lecture/Room 1

The speech will cover the latest update of Chinese online game market, industry report and the future trends, followed by strategies to contact the Chinese game operators, the dos and don'ts. Finally, we review a complete contact list to all major online game operators.



Starting from Scratch: from Mod team to Triple-A in 6 years

Paul Wedgwood

4:30-5:30pm/60-minute Lecture/Room 5

Paul Wedgwood discusses the origins of the company Splash Damage. Paying particular attention to the important lessons learned on the way, as well as highlighting failures, this presentation should provide a glimpse into what it takes to start a studio from scratch in the modern development climate.

THURSDAY, SEPTEMBER 6

Emerging Legal Issues for Online Games

S. Gregory Boyd

11am-12pm/60-minute Lecture/Room 1

This talk will cover the new legal and business issues facing online games that have developed over the past year. The talk will touch on topics such as EULA

and TOU's after the SECOND LIFE Bragg decision, virtual property developments, intellectual property, and how international law complicates online game end user relationships in unexpected ways.



Who Are Your Customers, and How Will They Pay?

Kevin Higgins

11am-12pm/60-minute Sponsored Session/Room 4C

An interesting, informative look at the world's fragmented payment environment—and some solutions from an expert panel of alternate payment providers. How accessible are YOU to global customers?

Licensing MMOs Worldwide

Jeffrey Anderson, Corey Bridges, Steve Goldstein, Joshua Hong, Calvin Yoo

1:30-2:30pm/60-minute Panel/Room 1

This panel brings together business experts in international licensing to review what factors contribute to the making of a successful, globally relevant and scalable licensing deal.



Building MMOS is EASY

George Dolbier

1:30-2:30pm/60-minute Sponsored Session/Room 4B

The barriers to entry for MMO development is changing rapidly. Building a studio, building an MMO product, technology choices and development methodologies are just a few of the areas covered in this session.

Financing Options for Online Games

Craig Fryar

3-4pm/60-minute Lecture/Room 1

During this lecture, we'll cover a number of practical topics on how to successfully court and capture an investor's imagination—and his wallet. Alternative sources will also be discussed, including funds from the government, industry and "organic" sources. From how-to-find to how-to-pitch, the due-diligence-dance, term sheets and closing, come find out how to find your share of investment funds for your next title.

F2P/Micro-transaction Games: Considerations, Risks and Potential Rewards

Cindy Armstrong, Joshua Hong, John Young

3-4pm/60-minute Panel/Room 6B

Whether a developer is self-publishing or partnering with an established service provider, this panel will offer insight, hindsight and foresight to F2P/microtransaction models – their risks and potential rewards.

IGDA Online Games SIG Whitepaper Project Roundtable

James Hursthouse

4:30-5:30pm/60-minute Roundtable/Room 7

The 2007 IGDA Online Games SIG Persistent World Whitepaper is a work in progress that aims to take advantage of the interactive, fluid nature of the Wiki format to develop a central canon of knowledge created by and for the community of online game developers on the art, craft, and science of online game development. We encourage anyone with an interest in contributing or volunteering to help with the project to attend this session.

Startup Lessons from Recent Online Games

Anthony Castoro, Nabeel Hyatt, Daniel James, Raph Koster, Joe Ybarra

4:30-5:30pm/60-minute Panel/Room 1

This august panel of the founders of recent hot MMO startups will get down and dirty with the details of how to do (and how not to do) the startup thing. Topics discussed will include: financing, licensing and IPs, Web 2.0h, distribution, revenue models, and trying to hire and recruit in boom times.

FRIDAY, SEPTEMBER 7

Where are the Biggest Online Gaming Opportunities?

Erik Bethke, Matt Firor, Mark Jacobs, Raph Koster, John Smedley

1:30-2:30pm/60-minute Panel/Room 1

This all-star panel of MMO veterans will examine the current MMO market and discuss where there are opportunities for increasing revenue, reaching new players, and incubating new markets. From implementing innovative revenue models to experimenting with new MMO game design, various tactics for growth will be discussed.



Sessions

ONLINE GAMES COMMUNITY AND MARKETING

WEDNESDAY, SEPTEMBER 5

Building Bridges: How to Develop Social Networks as Part of Community Management

Rich Vogel

11am-12pm/60-minute Lecture/Room 2

Why think of gaming communities in terms of forums and a web presence? We need to think communities as social networks. We need to allow gamers to develop networks (bridges) with themselves as well as with developers and publishers. There are many examples of social network sites like YouTube, LinkedIn, and MySpace. We need to look at what they are doing and capture the best ideas and put these ideas to work.

Community Management 101: Design, Maintenance, and Growth

Cindy Bowens, Craig Dalrymple, Kelly Knox, Victor Wachter, Sanya Weathers

1:30-2:30pm/60-minute Panel/Room 2

This panel will demonstrate on why you should focus first on Community from the ground up when designing a MMO, and explore how to do so. Then the panel will discuss how to grow the community into a healthy maturity.



Breaking the In-game / Out-of-game Barrier

Sean Flinn, Todd Northcutt

3-4pm/60-minute Panel/Room 5

Online plays a crucial role in today's game experiences and marketing strategies. Developers must provide ways to connect communities to their games—even when not actively playing. Find out how buddy lists, instant-messaging, competition and statistics can tie together to create thriving, persistent communities that engage gamers in-game and out.

Identifying, Engaging and Empowering Community Influencers

Alan Crosby, Charles Dane, Paul Della Bitta, Troy Hewitt, EM Stock

3-4pm/60-minute Panel/Room 2

You've seen them—they are the pied pipers of your community. They are called

Community Influencers and they can be a boon or a bane to any community building endeavor—and oftentimes they are both! This discussion will focus on identifying where these thought leaders can be found and how community management professionals can identify and leverage the contributions of positive and negative Influencers alike.

THURSDAY, SEPTEMBER 6

Notes from the Underground: Building Buzz for Casual and Indie Games

Tom Nichols, Paul Taylor, Jason Wonacott

1:30-2:30pm/60-minute Lecture/Room 2

How is it possible for small indie developers and developers of small casual games to create effective fan communities, command column inches and cause a bigger stir than the biggest players? This panel will examine the potential opportunities – and pitfalls – of doing marketing and PR for your casual or indie game.

Designing to Inspire and Engage Your Community

Ron Meiners, Celia Pearce, Craig Sherman

3-4pm/60-minute Lecture/Room 2

Online games have created new social spaces, new frameworks for content creation, and emergent community dynamics. One of the challenges presented by persistent games and virtual worlds is the need to foster long-term relationships with player communities. Online games may be “stickier” when users feel direct personal commitment to and involvement with the game's content, with business implications for game creators and their marketing partners. This session will focus on design innovations that creatively engage players and keep them invested in the game.



Playing Nice with Alternative Media

Alan Crosby, Elizabeth

Harper, Brent Lassi, Sanya Weathers, Michael Zenke

3-4pm/60-minute Panel/Room 5

A blended panel of industry and independent bloggers and podcasters will discuss the pros and cons of interfacing with alternative gaming press. Also, what value do studio-operated blogs and podcasts provide in terms of community building and product marketing?



The Big Board Debate!

Paul Della Bitta, Cindy Bowens, Troy Hewitt, Chris Launius, Chris Mancil, EM Stock

4:30-5:30pm/60-minute Panel/Room 2

Find out what whether YOUR product should integrate message boards by joining us for a spirited discussion not only exploring the advantages/disadvantages of maintaining Official Boards...but hearing the tales of success and regret from those who were brave (or silly) enough to stray from convention.

FRIDAY, SEPTEMBER 7

The New Kids on the Social Networking Block

Kathleen Craig, Ron Meiners, Michael Steele

11am-12pm/60-minute Panel/Room 2

This panel takes a close look at the residents of the next generation of social networks and virtual worlds and examines what they have to teach game developers and marketers. Who are the people behind these avatars? Why are they there and what are they doing? How can you engage them? Why should you care?

Making Money in Virtual Worlds

Kathleen Craig, Gabriel Paci, Daniel Terdiman

1:30-2:30pm/60-minute Panel/Room 2

Using SECOND LIFE and There.com as examples, we will look at how enterprising people have managed to earn full-time livings in the fashion, real estate and construction businesses and we will talk about how those people have done so. We will also look at other virtual worlds and examine what opportunities exist there.

ONLINE GAMES DESIGN

WEDNESDAY, SEPTEMBER 5

Designing for Everywhere

Raph Koster

11am-12pm/60-minute Lecture/Room 6A

We now understand much more than we did about the interactions between mechanics, the pacing of goal structures, and the way in which aesthetics and “dressing” work with the game structures. In this lecture, we'll



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explore design and technology approaches that push towards the goal of "play anywhere" using these criteria as design principles.

Increasing Enjoyment & Decreasing MMO Churn through Intrinsic Need Satisfaction

Scott Rigby

3-4pm/60-minute Lecture/Room 6A

Supported by data collected from hundreds of MMO players worldwide, this session will present three specific motivational needs that when satisfied in the player are proven predictors of enjoyment, enthusiasm, value, and sustained subscriptions. Going deeper, the presentation will then discuss how a game's satisfaction of these needs can be objectively measured.

Is It Fun Yet?

Janus Anderson, Dallas Snell

4:30-5:30pm/60-minute Lecture/Room 6A

At each stage of an online game's development, designers have asked themselves the age-old question: "Is it fun yet." This session focuses on using player metrics to analyze the "fun factor" in a game, and provides concrete examples of how metrics can be useful in identifying key areas in which the game can be improved.

THURSDAY, SEPTEMBER 6

The Zen of Online Game Design

Damion Schubert

1:30-2:30pm/60-minute Lecture/Room 6A

This lecture discusses how to avoid getting lost in the weeds, and instead look at the design more holistically. Topics that will be addressed include: how to really think about hardcore vs. casual gamers, how to navigate the game vs. world philosophical split, how to build a well-centered game, and how to deal with players with different levels of emotional investment.

Watch, Listen, & Learn: Using Consumer Research to Make Your Game Better

Charles Harrison

3-4pm/60-minute Lecture/Room 6A

When used effectively, consumer feedback can result in a more efficient iteration process and overall improvements in game quality. This lecture will describe methods for incorporating consumer feedback in to all phases of the game development lifecycle.



Combining Conventional MMO Gameplay with a Mini-game Mindset

Tim Holt, Peter Smith

4:30-5:30pm/60-minute Lecture/Room 5

The presentation will focus on an in development game built on this type of hybrid gameplay: we take the strong motivational and entertainment style of a conventional MMO and combine it with Flash and other Web 2.0 technologies. By showing their knowledge of physics as presented in mini-games, players are able to level up, gaining access to new regions, skills and gear.

MMO Goal Structures as a Panacea

Erik Bethke

4:30-5:30pm/60-minute Lecture/Room 6A

What is the best kind of MMO? Do people want an open sandbox to create their own goals, structures, and gameplay? Or is a MMO where players are told what to do next and shown how to level or grow the best? What if it is both?

FRIDAY, SEPTEMBER 7



Game Innovations That Matter Today

Dave Laux

11am-12pm/60-minute Sponsored Session/Room 4B

Features that were once cutting edge are now expected in the games of today. This session will discuss innovations that will be required in game titles within the next 24 months.

The 4 Most Important Emotions of Game Design

Nicole Lazzaro

11am-12pm/60-minute Lecture/Room 6A

Come find out how games such as WOW, Line Rider and Wii Sports go beyond Fiero to build their signature PX Profiles with gameplay. Emotions do more than reward for a job well done. Join us for the full story and add more emotion to your game.

Designing Multi-Platform MMOs: Games for the Next Generation of Gamers

Jens Andersen, Chris Cao

1:30-2:30pm/60-minute Lecture/Room 6A

As the online capabilities of console platforms evolve, more and more developers are looking for ways to translate existing PC online conventions into the space. One of

the primary candidates for such a transition are MMO's. This discussion will focus on the design challenges inherent in creating a multi-platform MMO and offer perspectives from both sides of the equation with the goal of informing the development of this emerging new genre.

ONLINE GAMES TECHNOLOGY AND SERVICES

WEDNESDAY, SEPTEMBER 5

Caching for Web 2.0 - How and Why

Adam Martin

11am-12pm/60-minute Lecture/Room 6B

This talk covers issues of development cost, scalability, game-maintenance, and adding new features to MMO games that are moving to the web to adopt the principles of Web 2.0. Detailed solutions are explained in terms of caching and data-interchange between disparate sub-systems.



Revenue Enhancement through offshore CRM in MMOG

Santosh Gurlahosur, Aurelien Merville

11am-12pm/60-minute Sponsored Session/Room 4B

With the vast pool of highly skilled low-cost English speaking manpower in India, the revenue enhancement in MMOG is a definite goal to be achieved. With high quality customer support services, in-game support combined with beta game testing, India is rightly poised to provide a cost effective services to gaming companies.

Embracing Web 2.0: Applying Web 2.0 Success to the MMO Space.

Rick Luevanos

1:30-2:30pm/60-minute Lecture/Room 6B

An exploration into the tools, techniques, and ideals that helped Web 1.0 transform into Web 2.0, and how these transformations might be adapted to improve the infrastructure and services behind MMO Gaming. This session will explore how Web 2.0 can be leveraged to improve existing methodologies and processes within MMO infrastructure and services.



Sessions

World Class Networking Infrastructure

Ruben Cortez

3-4pm/60-minute Lecture/Room 6B

In this session, we will cover the basics involved in creating such an online environment, running it over time, and hopefully growing it as it becomes successful. We will also touch on some advanced methodologies for dealing with the special challenges unique to MMO's.

The Latest Learning - Database Solutions

Raphael Cedeno, Jay Lee, Doug Mellencamp

4:30-5:30pm/60-minute Lecture/Room 6B

This lecture will seek to answer the question 'How do you save game object state to a database?' Mapping game object state systems to a database has historically been problematic as games have more dynamic object models and transactional requirements than typical business applications.

THURSDAY, SEPTEMBER 6

SPONSORED SESSION

3D Pipeline and Shader Optimizations for Intel Integrated Graphics

Arzhang Safdarzadeh, Katen Shah

11-12pm/60-minute Sponsored Session/Room 4B

Intel Integrated Graphics accounts for a large number of desktop and notebook graphics ranging from the mainstream to value market segments. This course will go over 3D features and implementations on Intel® Integrated Graphics in 2007/2008 and provide guidance on how to improve 3D performance on desktop and notebook platforms.

SPONSORED SESSION

Autodesk 3ds Max, Maya and Motionbuilder – The Industry Standards

Louis Marcoux, Steven Roselle

11am-12pm/60-minute Sponsored Session/Room 4A

Autodesk product specialists will show the latest versions of 3ds Max, Maya and MotionBuilder. They will focus on new features and integration possibilities. Additionally, many tips and tricks will be presented as a way to optimize your production process.



Dupes, Speed Hacks and Black Holes: How Players Cheat in MMOs

Tim Keating

11am-12pm/60-minute Lecture/Room 5

This talk is an overview of problems encountered by the speaker during his tenure on Ultima Online. A cautionary tale, this talk offers practical suggestions for developers on up and coming products who wish to avoid making the same kinds of mistakes.

Web Client Development Issues - Best Practices

Michael Bayne, Michael Grundvig

11am-12pm/60-minute Lecture/Room 6B

In this co-lecture, the speakers will review the capabilities of current web technologies and discuss how to build them into a web client from the ground up.

Customer Service - Best Practices

D. Scott Mattson

1:30-2:30pm/60-minute Lecture/Room 6B

Customer service is a crucial component of any services-oriented product. This lecture will collect examples of the best features of customer service practices globally in a comprehensive review, and discuss how to implement these.



Gameplay Metrics for a Better Tomorrow

Darius Kazemi

1:30-2:30pm/60-minute Lecture/Room 5

This session shows how the collection of gameplay metrics, when coupled with an appropriate methodology, can greatly assist in design, quality assurance, customer service, and community management.

SPONSORED SESSION

Threading Games for Performance Part 1

Brad Werth

1:30-2:30pm/60-minute Sponsored Session/Room 4A

This three-part session will cover proven architectures for game threading, including hands-on modification of a single-threaded codebase to use multiple threads effectively.

SPONSORED SESSION

Multiverse: Under the Hood

Raphael Cedeno

3-4pm/60-minute Sponsored Session/Room 4B

Multiverse's CTO details the Multiverse Platform's unique architecture, which has enabled anyone – whether student or huge media company – to quickly create new, radically different MMOGs.

Taming Online Scaling Issues

Bill Dalton, Brad Lineberger, Fernando Paiz, Joe Rumsey, Jason Spangler

3-4pm/60-minute Roundtable/Room 7

This technical roundtable will invite attendee participation to discuss the best solutions in approaching scaling issues. The roundtable leaders will share their knowledge and solicit contributions from the audience in order to evolve a picture of best practices.

SPONSORED SESSION

Threading Games for Performance Part 2

Brad Werth

3-4pm/60-minute Sponsored Session/Room 4A

This three-part session will cover proven architectures for game threading, including hands-on modification of a single-threaded codebase to use multiple threads effectively.

MMO Testing issues: Scale and Play Patterns - Best Practices

Brian DuBose, Michael Gilmartin, Jay Piette, Tony Rado, Mathis Tvedt

4:30-5:30pm/60-minute Panel/Room 6B

The session tackles the unique challenges of testing MMOs, bringing together five veterans who discuss, from their own experience, the most effective methodologies and tools they have encountered. The session will also include a Q&A.

SPONSORED SESSION

Threading Games for Performance Part 3

Brad Werth

4:30-5:30pm/60-minute Sponsored Session/Room 4A

This three-part session will cover proven architectures for game threading, including hands-on modification of a single-threaded codebase to use multiple threads effectively.

FRIDAY, SEPTEMBER 7



Flogging: Data Collection on the High Seas

Joe Ludwig

11am-12pm/60-minute Lecture/Room 5

Formal logging and metric collection are hot topics in the world of MMO development. All three components of the system are outlined, including the in-game API, the database, and the log reporting tools



Sessions

Online Gaming Architecture: Dealing with the Real-Time Data Crunch in MMOs

Bill Dalton

11am-12pm/60-minute Lecture/Room 6B

In this session, BioWare, a leading developer of role playing games, will share its experiences in utilizing CEP technologies to accelerate the development of its next-generation MMO gaming platform.

Massively Modernized Online: MMO Technologies for Next-Gen and Beyond

Shannon Posniewski

1:30-2:30pm/60-minute Lecture/Room 6B

The talk outlines the inner workings of Cryptic Studios' distributed server architecture used for CITY OF HEROES and CITY OF VILLAINS, and the new improvements being made for future games like MARVEL UNIVERSE ONLINE. Architecture, scalability, reliability, operational simplicity, and lessons learned from years of live operation are discussed.

WRITING FOR GAMES

WEDNESDAY, SEPTEMBER 5

Everything I Needed to Know about Game Writing I Learned from Star Trek

Evan Skolnick

11am-12pm/60-minute Lecture/Ballroom B

Using Star Trek as a reference point, this entertaining presentation illustrates how to see the structure and the thinking behind whatever your favorite stories might be, from the need to break stereotypes and challenge expectations to basic story structure and plot development...and how to apply them to writing for games.



Alexander the Great: Narrative Approaches to Ludic Historiography and Simulation

Max Geiger

1:30-2:30pm/60-minute Lecture/Room 5

This talk examines the influence of Alexander the Great's historical legacy upon modern video games. Alexander's role as both a fictional and historical character has had a profound impact on the representation of protagonists within games, while

simultaneously, the open-ended nature of interactive media offers players a chance to explore and define their own history of a heroic life unlike any other medium.

Familiarity Breeds Contempt: Building Game Stories that Flow

Patrick Redding

1:30-2:30pm/60-minute Lecture/Ballroom B

Players dismiss a game's story if it undermines their sense of flow. Game play promotes flow by delivering basic elements ranging from 'feedback' to 'concentration.' When these elements form the basis for the story, the player accepts the illusion of continuity even if the narrative is constructed on the fly by the game AI. Surveying numerous examples from well-known games, this session shows how writers and designers can use flow as a tool to validate a story direction. The session outlines a strategy using modular content to connect the player's mastery of the controls with the dramatic progression of challenges.

Franchise Players: Writing for Game Sequels

Tom Abernathy, Armand Constantine, Steve Jaros, Micah Wright

3-4pm/60-minute Panel/Ballroom B

In an industry that prizes pre-sold product, it's only a matter of time before most writers are going to work on a sequel. The challenges tackled in this panel are immense and diverse. Let the bullets and brainstems fly!

Whose Game Is It Anyways?

Shana Merlin

4:30-5:30pm/60-minute Roundtable/Room 7

Using techniques pulled from the fields of organizational behavior and improvisational theatre, this interactive session will have you up on your feet participating while giving you techniques for taking risks, writing more innovative stories, and communicating effectively with all kinds of team members. In this interactive session, conference attendees will have an opportunity to network, co-create, and play in a fun and safe environment.

THURSDAY, SEPTEMBER 6

Negotiating Mind Games

Michael Gibson

9:30-10:30am/60-minute Lecture/Ballroom B

Writer/producer Michael Gibson will provide an in-depth look at how to write negotiation games that are funny, surprising, enlightening

and totally absorbing. He will reveal techniques to rein in branching story-lines, build dramatic twists with complex characters and, design interactivity that is absorbing but doesn't hijack the dramatic structure.

One World: Developing Story and Gameplay Together

Matt Costello

11am-12pm/60-minute Lecture/Ballroom B

This will be a highly interactive presentation that explores, from one long-time practitioner's point of view, essential ways that 'story' is built. Through a variety of exercises, the audience experiences how 'story' can change the nature, importance, and meaning of any and all gameplay and interactivity. Not really a lecture...this presentation will use the audience itself to bring home all its points in a visceral, memorable way.

From One-off to Franchise - Finding the Holy Grail

Flint Dille

1:30-2:30pm/60-minute Lecture/Ballroom B

The Holy Grail of the entertainment industry is to create a franchise - an intellectual property which can cross media from video games to film to TV to toys, comic books and other ancillaries. In this session, we will analyze what we as video game creators have to do to develop our intellectual properties so that they can become true cross media franchises.

MMO Story Hour: Instancing, Epic Tales, Mistakes, and Too Much Text

Jess Lebow

3-4pm/60-minute Lecture/Ballroom B

There is a difference between telling a story in an MMO and in, well, almost any other medium. Come listen to Jess Lebow talk about the difficulties and surprising discoveries he's encountered while guiding the story for both Guild Wars and Pirates of the Burning Sea. Be prepared to hear some embarrassing stories, advice on what NOT to do, and how instancing can both save the world and ruin it at the same time.

Writing, the BioWare Way

Drew Kapyshyn, Mike Laidlaw, Mac Walters

4:30-5:30pm/60-minute Panel/Ballroom B

The panel will discuss broad issues, such as project size, team structure, and how the composition of the production team changes during development, and will then drill down into areas of specific interest to game



Sessions

writers. Examples will be drawn from the panel's experiences on MASS EFFECT as well as other previous and ongoing projects.

FRIDAY, SEPTEMBER 7

Game Writing Workshop Part 1

Richard Dansky, Daniel Erickson
9:30-10:30am/60-minute Roundtable/
Room 7

Almost every writer can benefit from the review and critique of their work. In this session, limited to the first 15 who sign up, participants will be asked to submit game writing samples at least two weeks in advance that will be shared out among the group, and each writing sample will get a group critique during the conference. Other conference attendees are welcome

to observe the session. This is part one of a two-part series. Participants should attend both sections.

Game Writing Workshop Part 2

Richard Dansky, Daniel Erickson
11am-12pm/60-minute Roundtable/
Room 7

See Game Writing Workshop Part 1.

What Do I Do Now? Narrative Devices for Guiding Players

Chris Bateman
11am-12pm/60-minute Lecture/
Ballroom B

One of the key roles of a game writer is keeping players informed of what is expected of them, ideally in narrative terms that can be subtly embedded into the game

story. This session explores how to do so in terms of real game examples, and provides ideas to guide writers in their own work.

Literate Gaming: How We Can and Must Do Better at Writing for Games

Austin Grossman
1:30-2:30pm/60-minute Lecture/
Ballroom B

Presently, writing in games is the weakest link in our medium—as every other part of the game industry gets better, writing is the slowest to improve and most inconsistent in quality. Why, and what can we do about it? Austin will give an overview of four crucial areas, what's going on there, bringing perspective from his experience writing a successful novel, after having written for many years inside the game industry.



Friday, September 7, 2007 – Room 4B

IN ASSOCIATION WITH: PROGRAMMED BY:

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SESSIONS



9:30-10:30am
KEYNOTE: A Game Industry Journeyman
Andy Schatz, CEO, Founder,
Pocketwatch Games

From his start as an intern at one of the first internet gaming portals in 1995 through his work in the big budget console world to the happy land of indie game development and the casual gaming gold rush, Andy has seen it all. Learn about how to break into the industry, and then how to break out of it.

Host of the 2007 IGF awards, Andy Schatz founded Pocketwatch Games, creators of the acclaimed indie ecosystem-building game, VENTURE ARCTIC. After working for 7 years under the thumb of the large-scale videogame development world (where he wrote the first Xbox Live code to ship to the public), Andy decided to go 'indie'. His first title, WILDLIFE TYCOON: VENTURE AFRICA, was built in 10 months on a budget of \$8,000 and has sold over 70,000 copies worldwide.

11am-12pm
Schools Under the Microscope: An Open Q&A

Representatives from various types of schools that offer degrees in, or related to, game development and design are on-hand to take your questions. Please prepare questions in advance to submit to the moderator on-site. We will also open the floor to general questions in the last twenty minutes of the session.

12-12:30pm
DISNEY SPONSORED SESSION:
"Disney's World of Worlds: Where We Came From and Where We are Headed"

12:30-1pm
Pitch Your Game Idea

Think your idea could make a good game? Ask the experts! A panel of industry professionals hear your one-minute pitch and give you the thumbs up, thumbs down! Everyone is encouraged to participate in this fast-flowing session.

1:30-2:30pm
What are Employers Looking for Now?

What are the latest hiring trends in the game industry? What do companies look for in entry-level candidates? Which skills are most sought after? Learn, from search to follow-up, how to showcase the skills you are equipped with. Followed by Q&A.

3-4pm
Networking 101

It's not always what you know, but who you know! Lasting impressions can carry you a long way. Learn how to talk to anyone, how to make yourself memorable in an industry full of memorable people, and how to increase the value of your contacts over time.

www.GameCareerSeminar.com



Speakers

Tom Abernathy

Senior Writer/Designer, Pandemic Studios

Franchise Players: Writing for Game Sequels
Wednesday

Janus Anderson

Creative Director, NCSOFT

Is It Fun Yet?
Wednesday

Jeffrey Anderson

CEO, Turbine Entertainment Software

Licensing MMOs Worldwide
Thursday

Cindy Armstrong

CEO, Webzen America, Inc.

F2P/Microtransaction Games: Considerations, Risks and Potential Rewards
Thursday

Steve Augustino

Partner, Kelley Drye & Warren LLP

From Austin to Washington: Politics and Video Games
Wednesday

Chris Bateman

Managing Director, International Hobo Ltd

What Do I Do Now? Narrative Devices for Guiding Players
Friday

Michael Bayne

CTO, Three Rings

Web Client Development Issues - Best Practices
Thursday

Erik Bethke

CEO, GoPets, Ltd.

MMO Goal Structures as a Panacea
Thursday
Where are the Biggest Online Gaming Opportunities?
Friday

Cindy Bowens

Consultant, Seahshadow Consulting

Community Management 101: Design, Maintenance, and Growth
Wednesday
The Big Board Debate!
Thursday

S. Gregory Boyd

Attorney, Kenyon and Kenyon

Emerging Legal Issues for Online Games
Thursday

Corey Bridges

Executive Producer and Marketing, Multiverse

Licensing MMOs Worldwide
Thursday

Tracy W. Bush

Audio Director, NCSOFT Corporation

What is "Next-Gen" and What the Heck Are We Doing About It?
Wednesday

Anthony Castoro

President and Founder, Heatwave Interactive

Startup Lessons from Recent Online Games
Thursday

Raphael Cedeno

Co-founder and CTO, Multiverse

The Latest Learning - Database Solutions
Wednesday
Multiverse: Under the Hood
Thursday

DB Cooper

Voice Actor, DB-Cooper.com

Creating a New Age of VO in Games
Friday

Reuben Cortez

Service Director, BioWare Austin

World Class Networking Infrastructure
Wednesday

Lisa Cosmas Hanson

Managing Partner, Niko Partners

How to Get Your Games into China
Wednesday

Matt Costello

Writer & Game Designer, Polar Productions

One World: Developing Story and Gameplay Together
Thursday

Kathleen Craig

Producer, Millions of Us, Millions of Us

The New Kids on the Social Networking Block
Friday

Alan Crosby

Director, Global Community Relat,

Sony Online Entertainment
Identifying, Engaging and Empowering Community Influencers
Wednesday

Craig Dalrymple

Community Relations Manager

- EVERQUEST II, Sony Online Entertainment
Community Management 101: Design, Maintenance, and Growth
Wednesday

Bill Dalton

Technical Director, BioWare Austin

Taming Online Scaling Issues
Thursday

Online Gaming Architecture: Dealing with the Real-Time Data Crunch in MMOs

Friday

Charles Dane

Community Manager, CCP Games

Identifying, Engaging and Empowering Community Influencers
Wednesday

Richard Dansky

Manager of Design/Writer, Red Storm Entertainment

Game Writing Workshop Part 1
Friday

Game Writing Workshop Part 2

Friday

Paul Della Bitta

Sr. Community Manager, Blizzard Entertainment

Identifying, Engaging and Empowering Community Influencers
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The Big Board Debate!

Thursday

Flint Dille

Writer, Designer, Producer, Bureau of Film & Games

From One-off to Franchise - Finding the Holy Grail
Thursday

George Dolbier

Sr. IT Architect, IBM

Building MMOS is EASY...
Thursday

Peter Drescher

Sound Designer, Danger, Inc.

How Broadband Phones Will Affect Mobile Game Audio
Thursday

Justin Drust

Sound Designer, Red Storm Entertainment

Working Toward Next-Gen Sound Design: GRAW2 MP
Friday

Brian DuBose

QA Manager, BioWare Austin

MMO Testing issues: Scale and Play Patterns - Best Practices
Thursday

Francis Dyer

Audio and Music Designer, Red Storm Entertainment

Working Toward Next-Gen Sound Design: GRAW2 MP
Friday

Daniel Erickson

Lead Writer, BioWare

Game Writing Workshop Part 1

Friday

Game Writing Workshop Part 2

Friday

Matt Firor

President, ZeniMax Online Studios

Where are the Biggest Online Gaming Opportunities?
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Sean Flinn

Senior Product Manager, IGN

Breaking the In-game / Out-of-game Barrier
Wednesday

Patrick Fraley

Voice Talent, Teacher,

Creating a New Age of VO in Games
Friday

Craig Fryar

VP Business Development,

Producer, Online Alchemy
Financing Options for Online Games
Thursday

Max Geiger

Student, University of Southern California

Alexander the Great: Narrative Approaches to Ludic Historiography and Simulation

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Producer, Zapdramatic

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Director, Quality Assurance,

Blizzard Entertainment

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Thursday

Steve Goldstein

Director of Business Development & General Counsel, Flagship Studios

Licensing MMOs Worldwide
Thursday

Brian Green

Writer, GamersInfo.net

Emerging Business Models Worldwide
Wednesday

John Griffin

Marketing Director, Games, Dolby Laboratories

What's Beyond 5.1?
Thursday

Chris Grigg

Chair, MMA Mobile Working Group and Technical Standards Board

Introducing the Interactive XMF Standard for Interactive Audio

Wednesday

Austin Grossman

Writer

Literate Gaming: How We Can and Must Do Better at Writing for Games
Friday

Michael Grundvig

Lead Server Programmer,

ElectroTank

Web Client Development Issues - Best Practices

Thursday

Santosh Gurlahosur

Head of Operations, Alchemic Dream India

Revenue Enhancement through offshore CRM in MMOG
Wednesday

Charles Harrison

User Research Engineer, Microsoft

Watch, Listen, & Learn: Using Consumer Research to Make Your Game Better

Thursday

Troy Hewitt

Director, Community Relations,

Flying Lab Software

Identifying, Engaging and Empowering Community Influencers
Wednesday

The Big Board Debate!

Thursday

Kevin Higgins

CEO, PayByCash

Who Are Your Customers, And How Will They Pay?
Thursday

Michelle Hinn

Doctoral Candidate, University of Illinois, Urbana-Champaign

When Audio IS the Experience: Games for the Visually Impaired
Friday



Speakers

Alistair Hirst

CEO, Omni Interactive Audio
Audio for Guild Wars
 Thursday
What is "Next-Gen" and What the Heck Are We Doing About It?
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Tim Holt

Oregon State University
Combining Conventional MMO Gameplay with a Mini-game Mindset
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Joshua Hong

CEO, K2 Network, Inc.
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James Hursthouse

CEO, Online Game Services Inc
IGDA Online Games SIG Whitepaper Project Roundtable
 Thursday

Nabeel Hyatt

Founder and CEO, Conduit
Startup Lessons from Recent Online Games
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Mark Jacobs

VP EA, Studio GM EA Mythic, EA Mythic
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Designing for Everywhere
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podcaster, VirginWorlds.com
Playing Nice with Alternative Media
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Chris Launius

Lead Community Manager, Perpetual Entertainment
The Big Board Debate!
 Thursday

Dave Laux

Global Executive, Games & Intera, IBM
Game Innovations That Matter Today
 Friday

Nicole Lazzaro

Founder and President, XEODesign
The 4 Most Important Emotions of Game Design
 Friday

Jess Lebow

Content Director, Flying Lab Software
MMO Story Hour: Instancing, Epic Tales, Mistakes, and Too Much Text
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Vice President, Technology, Trion World Network
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Truly Original Melodies For Game Music: Use Your Head To Escape Your Head
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Mike McShaffry

Bend Microsoft Project to Your Will
 Wednesday

Ron Meiners

Community Manager, Multiverse Network
The New Kids on the Social Networking Block
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Designing to Inspire and Engage your Community
 Thursday

Shana Merlin

Improv Teacher, Improvisor, Merlin Works
Whose Game Is It Anyway?
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Aurelien Merville

CEO, Alchemic Dream Inc
Revenue Enhancement through Offshore CRM in MMOG
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David Mollerstedt

Head of Audio, EA Digital Illusions CE AB
HDR Audio - Adaptive Prioritized Mixing in Frostbite
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Jessica Mulligan

Executive Producer for Online Games, Sunflowers GmbH
Emerging Business Models Worldwide
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Todd Northcutt

Director, GameSpy Technology Group, IGN
Breaking the In-game / Out-of-game Barrier
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Fernando Paiz

Director of Game Technology, Turbine
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Celia Pearce

Assistant Professor, Georgia Tech
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Director of QA, Turbine, Inc.
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Narrative Designer/Game Designer, Ubisoft Montreal
Familiarity Breeds Contempt: Building Game Stories that Flow
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Scott Rigby

President, Immersyve, Inc.
Increasing Enjoyment & Decreasing MMO Churn through Intrinsic Need Satisfaction
 Wednesday

Charles Robinson

, Dolby
Righteous Game Audio
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Intel
3D Pipeline and Shader Optimizations for Intel Integrated Graphics
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Brian Schmidt

Program Manager, Xbox Audio and Media, Microsoft
What is "Next-Gen" and What the Heck Are We Doing About It?
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Damion Schubert

Lead Combat Designer, BioWare
The Zen of Online Game Design
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Gene (Robert) Semel

Audio Director, High Moon Studios
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Katen Shah

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How to Get Your Games into China
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Evan Skolnick

Editorial Director, Vicarious Visions

Everything I Needed to Know about Writing I Learned from Star Trek
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President, Sony Online Entertainment

Where are the Biggest Online Gaming Opportunities?
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Research Faculty, University of Central Florida

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Senior Software Engineer, EA

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VP/Evangelist, Emergent Game Technologies

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EM Stock

Senior Community Manager, SOE Austin

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Stefan Strandberg

Sound Designer, Digital Illusions CE AB

HDR Audio - Adaptive Prioritized Mixing in Frostbite
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Paul Taylor

Project and Marketing Manager, Mode 7 Games

Notes from the Underground: How Indie Games Build Buzz
Thursday

Daniel Terdiman

Senior Writer, CNET News.com

Making Money in Virtual Worlds
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Mathis Tvedt

QA&CS Senior Manager, Funcom

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Building Bridges: How to Develop Social Networks as Part of Community Management
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Victor Wachter

Online Community Relations Manager, Cryptic Studios, Inc.

Community Management 101: Design, Maintenance, and Growth
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Mac Walters

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Writing, the BioWare Way
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Gordon Walton

Co-Studio Director, BioWare Austin

Business Lessons for Post-WOW Games
Wednesday

Paul Wedgwood

Owner/Lead Designer, Splash Damage Ltd

Starting from Scratch: From Mod Team to Triple-A in 6 Years
Wednesday

Brad Werth

Senior Software Engineer, Intel

Threading Games for Performance Part 1
Threading Games for Performance Part 2

Threading Games for Performance Part 3
Thursday

Jeffrey Wesevich

Studio Audio Coordinator, Red Storm Entertainment, Inc.

What is "Next-Gen" and What the Heck Are We Doing About It?
Wednesday

Working Toward Next-Gen Sound Design: GRAW2 MP
Friday

Guy Whitmore

Software Development Engineer

Creatively Managing Audio Teams and Production on Multiple Games
Thursday

Micah Wright

Writer, MicahWright.com

Franchise Players: Writing for Game Sequels
Wednesday

Joe Ybarra

VP Product Development,

Cheyenne Mountain Entertainment

Startup Lessons from Recent Online Games
Thursday

John Young

Vice President, Gala-Net

F2P/Microtransaction Games: Considerations, Risks and Potential Rewards
Thursday

Calvin Yoo

Director, International Business Development, Nexon

Licensing MMOs Worldwide
Thursday

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THE SUBVERSIVE GAME

» brandon sheffield

AN INTERVIEW WITH HARVEY SMITH

» I CONFRONTED HARVEY SMITH, STUDIO CREATIVE DIRECTOR FOR Midway Austin, at E3, just after a demonstration of his upcoming game, *BLACKSITE: AREA 51*. There was a vague allusion to political content, given that the game begins in Iraq, so I grabbed him and shuffled him off to a nearby bench in the Fairmont Hotel plaza to pump him for details.

As the winner of the Game Design Challenge at GDC 2006, in which the participants were meant to create a game that could win the Nobel Peace Prize, he seemed to have a handle on the underlying politics of the medium. Turns out he had a lot more to say than I'd imagined.

HARVEY SMITH: It's been a weird arc with *BLACKSITE*, both for me personally and the people looking at it. I had initially moved to Midway to work on one particular game that we haven't announced yet and that's part open-world and part RPG. In the background there was a first-person shooter, and I just wasn't that interested in it—though I love shooters, too.

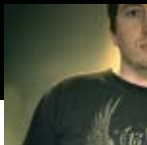
At first, I built the department there. In the first year, I'd say that I fired more people than anybody, and I hired more people than anybody. It framed up the two games, and it was very dissatisfying. It was effective, I think, but it was very personally dissatisfying, because I wasn't on a team.

This game got into trouble about a year ago, or a little before that. About a year ago, my boss Denise said, "Do whatever it takes," and I said, "Okay, I'm going to have to move my desk." And so I moved into the team and I said, "Fuck this Area 51 thing. I don't know what you're talking about. I don't want to do that."

I started saying that we were going to call the game *BLACKSITE*. The executives at Midway were like, "What?" We pushed small town environments, which they thought was odd.

Everybody thinks that you've got to be in a giant alien stomach or on a weird ship or something, but I've always been about very grounded [environments]. The *DEUS EX* levels [on which Smith was a designer] I love the most are the ones that look like a train station or a bathroom or a bar. We pushed that, pushed the name *BLACKSITE*, and pushed the subversive

BRANDON SHEFFIELD is senior editor of *Game Developer* magazine. He hopes that when the apocalypse comes his DS will be fully charged. Email him at bsheffield@gdmag.com.



THE SUBVERSION GAME

political angle, which is a lot stronger than what marketing thought it would be.

BRANDON SHEFFIELD: *The game starts in Iraq. How much are you doing with that element?*

HS: Quite a lot, actually. When I first wrote the one-page BLACKSITE story, it ignored things like, "Sure we want to steal some of the breakables from STRANGLEHOLD. We've got vehicles, [and so on]."

We eventually did squad command and this interesting squad morale feature, and I think those are cool. But always in the background, I was like, "Look, I'm really angry right now. Everything I read pisses me off." You can do this two ways: You can be super heavy-handed and propagandize—and I wasn't interested in that—or you can try to organically weave something through the entire work. If you do that, you run the risk of minimizing it so much that nobody notices.

I think we've actually done a pretty good job of not pushing it down your throat and yet not letting it vanish either. The game starts in Iraq. You're Aaron Pierce, a Delta Force assassin, essentially. Something happens to one of your squadmates in Iraq. You're looking for weapons of mass destruction that aren't there, of course, and then you move into small-town America.

At that point, you're with U.S. Special Forces operating on American soil. Moving into the first mission where you're about to be briefed, you're going past people and cars and checkpoints that have been quarantined.

Pierce figures out that the primary enemy in the game, which is being called an insurgency operating on U.S. soil, is really wounded American soldiers from Iraq who are being taken

underground by the government, and experimented on with regards to this "Army of One"-type program.

So we go into the Walter Reed allusions and the Abu Ghraib allusions, and we try to do it in such a way that won't make people vomit; but at the same time, it's

definitely there. The whole theme is: Who is the enemy? Look at the enemy. Do I look like the enemy?

One year, somebody is a freedom fighter, the next they're a terrorist.

BS: *Do you think people are going to take some of that away from it? I think that grounding it in a plausible beginning is a good way to get people to think about it.*

HS: We said early on that it would be great if parts of the game looked like CNN footage. We're working with Unreal Engine 3, which is very powerful, and we're making a game that is a HALFLIFE 2 or a CALL OF DUTY 2-style game. We're all huge fans of those, and they're among my favorite games of all time.



BlackSite takes place in small American towns, areas of high military recruitment.

But it's weird. You start doing that sort of thing, and of course you've got the squad morale and all that, but using UNREAL changes everything. The UNREAL engine doesn't like certain things, and it likes other things. But grounding it very much so that it wasn't just a goofy game about aliens or whatever, it's an allegory in the same way James Whale put together *Frankenstein* in the '30s or '40s. He was simultaneously talking about a monster for 13-year-olds and a totally disenfranchised character for those who felt disenfranchised. In that same way, if we're successful, we would like to do that sort of thing.

BS: *I'm really happy that someone is at least trying, because we talk as an industry a lot about making people cry and laugh, but above and beyond that, we can try to take some responsibility in certain areas.*

HS: With DEUS EX, when we were building missions, we said initially, "Wouldn't it be cool if, in addition to the guy telling you, 'Here's some ammo, go kill everyone. These guys are terrorists,' there was another guy who said, 'Hey, remember these are people. They believe what they believe, and if you can possibly do this mission without killing anyone, that would be awesome. Here's a taser.'"

It's kind of ridiculous at some level, but we were able to do that, and you would not believe how much we had to fight our own team.

Similarly, we had a conversation the other day about how gamers accept certain features after a period of time, and then they think that's the right way to do it, because it's the least frustrating. But initially there's this giant wall of resistance, and I think there's a little bit of a resistance related to the content.

This one game I want to make, I would say that moms would like it more than hardcore gamers, and yet it would benefit from something like the UNREAL tech — it would be very visceral, it would be very much about moving things physically through a space, and it would involve breakables. It wouldn't be comedy, but it wouldn't be a soap opera either—kind of a Lara Croft without the guns. I have no idea whether I'll ever get to work on that game or not, but I just mention it, and maybe 10 percent of the people tapped into the industry are like, "Whoa, way to go. That's cool," while 90 percent of the people have a giant wall of resistance. BLACKSITE has endured the same sort of thing.

CONTINUED ON PG 36

“THE WHOLE THEME IS: WHO IS THE ENEMY? LOOK AT THE ENEMY. DO I LOOK LIKE THE ENEMY?”

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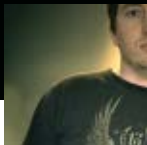
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CONTINUED FROM PG 34

BS: In the [BLACKSITE] demo I just watched, there were aliens everywhere and you could shoot them, but the thing I heard the audience respond to was when you sent a guy over to open a door and he couldn't open it, so he broke the window and unlocked it from the other side. That was the thing everyone responded to, and that's just a thing that would happen.

HS: It's funny that you would say that, because you never know what those things are going to be. In DEUS EX, we had a meeting with this guy we hated, the same guy who gave us a management lecture saying that if we all dressed properly — meaning Dockers and khaki pants — then our troops would respect us. Before he left, that guy said, "You know what would be fun in this game? If I could go into the women's restroom and get bitched out for it by some woman."

We all just said, "Please leave!" and then he left. Later, we said, "Hey, that's kind of interactive. What if we put a trigger in the bathroom, and if you happen to wander in there, your boss later says, 'And by the way, JC, stay out of the women's restroom,' at the end of the briefing?"

And we did it, and everybody who played DEUS EX commented on it. We couldn't believe it. We were like, "Dude, they didn't even notice our weapon modification system, but they noticed you broke this social taboo."

Similarly, we realized with the Xbox Live demo that right before one of the reborn scout enemies kills a guy in a van, the guy inside the van tries to roll up the window. People responded to that. It's these little character building moments that [matter].

BS: I think that's one thing that's missing a lot in terms of storytelling in games—moments and actions. There's no such thing as character beats most of the time.

HS: We literally beat charted out the game. We stole this lesson from Hollywood. We've got 32 missions in the game, and we look at them and think, "What's the position of the sun in this mission? What's the color palette? What did your squadmates go through emotionally in the mission before?"

So much of that is driven by technology, though. You spend so much time getting the animation system going, so that when the characters run up and get shot, they look for cover points within the world and crouch behind them and—oh God!—they popped, so we've got to have them turn more naturally. Then—oh God!—they can rotate in place without moving. That looks goofy. Let's have them play a little animation where they move their legs.

“ONE YEAR, SOMEBODY IS A FREEDOM FIGHTER, THE NEXT THEY'RE A TERRORIST.”



Deus Ex allowed the players to make their own moral choices.

You do all that, and the system finally works, and then they're robots. Congratulations. The Delta Force guy breaking the window and reaching around—it's another example of the subtle stuff we're weaving in, but it's like eminent domain. Delta Force has arrived at your auto mechanic shop or gas station, and they can break the window and get in. You talk to a yokel later who is a tinfoil hat-type guy who runs the place, but at the same time, it was a character-building moment. Should he blow it up with C4? No! How about if he reaches around and unlocks it?

BS: I think environments are a real problem in terms of immersion. Even in something as simple as the SONIC THE HEDGEHOG games, when I played SONIC 2 or SONIC CD, there were flowers, little bunnies hopping around, and moving clouds. I believed that was an environment I was inside of. As that series moved on, it became less about the environment.

HS: It's almost like this Darwinian thing that happens, where some people come together and try something and it's successful, and that brings in people who are making sure that it's successful again.

With DEUS EX, we included fish in the water. Whenever you jump in the water, there are schools of fish. There's a flocking algorithm, and they dart away from you. You can stand on the dock and watch them, and you can jump in, and when you're killing people underwater, there are fish swimming around you. There are rats in the alleys. There are cats on the rooftops.

It's so hard to convince a team about those things. I was recently adding a buzzard to BLACKSITE. I wanted buzzards that wheel in the distance in the desert. When you're driving along, I wanted buzzards around roadkill. As you get closer, they turn and flap and ascend into the air, and as you get even closer, you realize it's a wrecked Humvee and the roadkill is an American troop. That worked for me on many different levels. But a producer will look at that and think, "Ambient animal: priority four."

I'll say, "You don't understand! This is really important. I can't explain to you why." And the producer will respond, "Well, is it more important than fixing this bug in our animation system?"

BS: On one level, I believe details like these are necessary to advance games as an art. At the same time, only a really small

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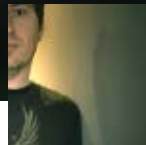


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percentage of players are going to notice and understand why those details are important. But how can the industry advance this medium as an art if most of the time we have to stick to a budget?

HS: Half the cool shit that happens in the game industry happens because of subversion. You're tracking to one date, and you're working X number of hours per week, but in the background, you're ninja-ing in features. That happens all the time.

Right now, we only work six hours on Saturday. We're in the final stretch, when everything's finally there. Every day that we have, we massage the game content, and it makes a tremendous difference. The game gets better every week. That wasn't true six months ago. It wouldn't have helped to work long hours because everything was in a nascent state. But when everybody's leaving and it's one of our guys hanging out with another one of our guys, they'll talk to me and I'll say, "You know what would be cool? This buzzard thing."

We dig through some library somewhere and find a buzzard, and one of the guys will say, "I can rig this model. It would probably take four hours to hook it up, and I could turn it over to that designer and he could script it into the game."

My part is telling them that the buzzard is important in setting up the scene and explaining why roadkill being a U.S. troop is cool. But they're the ones who have to work the extra hours half the time.

BS: Yeah, it's really cool, but it's also as if someone were coming in and saying, "Work 10 more hours to do this tiny thing!"

HS: And then he says, "But I just had a baby last month!"
"I know dude, but ..."

It's really like that. One of our guys has triplets. I don't have children, but I'm told by my friends that if you go away for a week and come back, you notice changes in your children. That's how fast they're growing. Denise is my boss, and she just had a baby. She told me the other day, "I get to see Teddy for three hours a day," and I replied, "That sounds horrible! What is wrong with you?"

She said, "Well, he sleeps a lot, first of all, and three hours is a lot for that age I guess." She felt guilty. I said, "Well, you know what? Since he sees you most of the time, he probably dreams about you, so all that time he's sleeping he's probably thinking about you." She said, "That actually makes me feel better."

Then I said, "Yes! Work this weekend!"

Half the cool stuff that happens is because someone sacrifices something, and some other group of people is veering off the budget, the schedule, and the corporate goals.

BS: I've always hated games that have squads, which you've put into *BLACKSITE*. I'll play *GHOST RECON ADVANCED WARFIGHTER*, and there are these guys—I don't know what to do with them. Every button does five different things, depending on how you press them. I played it with my co-worker, and as far as we can tell, he got killed by a bench. That's probably not what really happened, but that's how beyond us it was. But *BLACKSITE* looks simpler.

HS: There's a point in the world, and there's a button on the controller that you'll push, and the squad will run over and take



cover behind the line. People give me shit off and on about the left-leaning politics in *BLACKSITE*, and my defense is that so many games are already implicitly and strongly political. There's a patriarch figure. You're a good citizen because you follow orders. The bad guys are the ones in religious garb who are poor. The good guys are the ones with a command infrastructure and the millions of dollars worth of equipment and follow orders.

BS: And it's good to kill the bad guys.

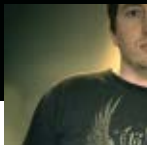
HS: It is good to kill them, you're right! You're a hero for killing them. We'll give you a medal. I'm not the first person to say that, though. Ian Bell was like this total hippie developer guy who did the game *ELITE* [with David Braben], the space trader game. He said that he loved *ELITE*, but he only realized years later that he had made an implicitly and inherently capitalistic game that very much supported the values of the haves having more and more while the have-nots have less and less, because of the positive feedback loops that are in economics. If he had known then what he knows now, he would have tried to balance that or put in a consequence or shown you what happens when one company has a monopoly. How did this happen? It's all about positive feedback loops and emergent economics. Unless we cap it, it'll just keep running.

BS: Another thing about squads: You've got the emotion stuff for the characters in morale. Is it an off-and-on for emotions, or is it an algorithm?

HS: It's definitely an algorithm. Points go into a pool based on what you're doing, how well you're doing, and whether you're giving orders, making headshots, or missing or hitting. It's whether you're letting your guys take damage.

At the peak of it, their tactics change, their facial expressions change, and their postures





THE SUBVERSION GAME

change, and they will race out into combat much more aggressively. They fight more. On the back end, they start taking cover more often, firing less often, and complaining. They have facial expressions, and they blind fire over cover more.

There's a lot of cool emergent stuff in games that you can build systems on. We have breakable cover. It's mostly combat cover objects. If the squad goes into low morale, they start taking cover behind stuff, like this bench, and a sniper hits it and it crumbles. You see more breakables because morale went into a low state. It's really cool and unexpected. Who thought that would happen?

Similarly, we have a recharging health model. It does do a recharging thing, but it also has a layer of armor on top of it, so if you find Kevlar, you don't take any damage until the Kevlar is gone. That allows us to make comments about Rumsfeld's style, not sending the troops to war with enough armor. But what happens is, when you're badly damaged—you're breathing heavy, the screen turns red, you want to take cover—you tend to crouch behind something, which causes the enemies to shoot at it. So you see things breaking all around you. We didn't expect that at all, either. The two just work together like that.

BS: Do you think if someone played this game, or a game like it, when they were 16, they might understand what they were getting into in terms of joining the Army or that sort of thing?

HS: No, I think almost all action movies, novels, or games, at the end of the day, romanticize to some extent the role of the warrior. It's hard not to. You can take a book like *Lord of the Flies*, which is about whether violence is inherent in man, and see that it can be read from a middle-school kid's perspective of, "I want to be like Jack on the island! I'm the guy with the spear kicking ass!" You can take that away from it if that's what you want.

Warren Spector always points out that there's a big difference between violence and aggressive play. Aggressive play is something that everybody engages in. When you're a kid, you swordfight, or run around playing Army, or wrestle. Lion cubs bite each other and roll around. They're not trying to hurt each other, clearly. Violence is trying to hurt another person, and aggressive play is a healthy, natural part of life. Violence is also a part of life, but is not healthy, and we should watch out for it. Video games are aggressive play. That's the way I look at it. The military, actually, is violent!

BS: It's weird when those two meet. You've got politicians saying that it's really bad, and then you've got AMERICA'S ARMY funded by America's Army—a game that gets kids interested in being in the Army.

HS: Or even worse, accepting a particular worldview. It goes deeper than that. ❖

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PUZZLE QUEST: CHALLENGE OF THE WARLORDS

PEOPLE HAVE ASKED ME MANY TIMES IN THE PAST FEW MONTHS JUST WHERE THE idea for PUZZLE QUEST: CHALLENGE OF THE WARLORDS came from. To put it all in context, a little history lesson is in order.

Infinite Interactive is a relatively small development studio in Australia. We've been around in various guises since the late 1980s. Our first commercial releases were the WARLORDS strategy games; and then, operating as the Melbourne office of SSG, we extended that franchise and spun off the WARLORDS BATTLECRY real-time strategy series.

With the slow decline of PC games over the last decade, we made a conscious decision in 2004 to change our focus to other platforms for anything except the biggest AAA titles. At first, the Xbox seemed like a good fit—it was after all just a tricked up PC in many ways—and so we started down the Xbox development path. But one issue became immediately apparent: No matter how much experience we had developing games, and no matter how many previous titles we could show off that had won Editor's Choice awards and 90 percent review ratings, no publisher wanted to deal with a PC developer in the console space until we had a game that was about 75 percent complete and that we could demonstrate.

I can't blame publishers for their guarded discretion. They learn from experience too, and they obviously had been burned before. Nevertheless, as a small developer, it's quite heartbreaking to see your company unable to find work and to let staff, who have often become good friends, move on to other jobs.

The next six months were extremely frustrating, but after that, a phoenix-from-the-ashes series of events actually resulted in the birth of PUZZLE QUEST.

The game is an odd little hybrid, part puzzler and part RPG. Some have even said it's part strategy game because there's so much depth. It was born of my love for RPGs mixed with an unhealthy obsession for BEJWELED that I had acquired some time in 2004. It also came about because we realized as a company three important things we needed to do if we were going to survive: 1) downsize to a manageable staffing level, 2) complete a playable prototype of a game for a non-PC platform that was appropriate to our staff size, and 3) leverage our strongest franchise, WARLORDS.

"Aha!" you might say, "WARLORDS!" But the game is not primarily called WARLORDS. However, we did call it WARLORDS CHAMPIONS when we first started, and we managed

STEVE FAWKNER is CEO and lead designer at Infinite Interactive. He has more than 23 years of game development experience and more than 20 titles under his belt. Email him at sfawkner@gdmag.com.

GAME DATA

DEVELOPER
Infinite Interactive

PUBLISHER
D3Publisher of America

DEVELOPMENT TIME
2.5 years

NUMBER OF DEVELOPERS
4 (full time)
8 (contractors)

PLATFORM
Nintendo DS, PSP,
Xbox Live Arcade, PC demo

RELEASE DATE
March 20, 2007

SOFTWARE USED
Microsoft Visual Studio,
Photoshop, 3ds Max

TECHNOLOGY
SAGE (proprietary engine),
DirectX, LUA, XML, OpenAL,
Vicious Engine

LINES OF CODE
250,000 (C++)
100,000 (LUA)

NUMBER OF FILES
20,000

THREATS
6 (death), 1 (bomb)

JUNK FOOD CONSUMED
Krispy Kreme donuts (648)
Liters of Red Bull (540)





to keep the WARLORDS reference in the subtitle as a tribute to our past games. But most players don't even use the longer name now.

Two-and-a-half years have passed since then and we finally have a successful game. We've made the leap into handheld and console space, and we're at a point where we can start to grow the company again. It hasn't been all smooth sailing, but more has gone right than has gone wrong.

WHAT WENT RIGHT

1 TOOK TIME TO POLISH THE GAME. From the outset, we had the sense that PUZZLE QUEST was really going to be a key title for us, though in a way, every title should be

a key title. I don't believe that any professional development team who truly respects our industry should give less than 100 percent to any project. Whether a game is the most obscure children's movie tie-in or the coolest new high-profile franchise, every single thing we work on gives us a chance to exceed the players' expectations, spread a little bit of good karma, and showcase our talents while we're at it!

My rather extreme philosophies aside, what really made PUZZLE QUEST so important to us was that it was our first step into a new marketplace. At its core, the game may have been only a simple puzzler that required a few developers to produce, but it would determine the future of our company. We spent six months just tinkering with it before we even showed it to a potential partner, and another six months refining it before we finally settled on a deal ... and another 15 months developing the title before we released it on PSP and DS. Now we have an Xbox 360 Live Arcade version and the game is due for release on Wii, PlayStation 2, PC, and mobile platforms. The game's reach has actually turned out better than we could have hoped for.

While a 27-month development cycle is not entirely unusual, there is one difference with PUZZLE QUEST's: the game was mostly

complete after two months of development. See the sidebar "Development Timeline" for a more precise explanation of how the project unfolded, month-by-month.

2 WORKED CLOSELY WITH THE PUBLISHER. After a lengthy process, we finally found a publishing partner, D3Publisher, who we knew would be a good fit for both our company and our project. I can't stress enough how important it is to choose a publisher

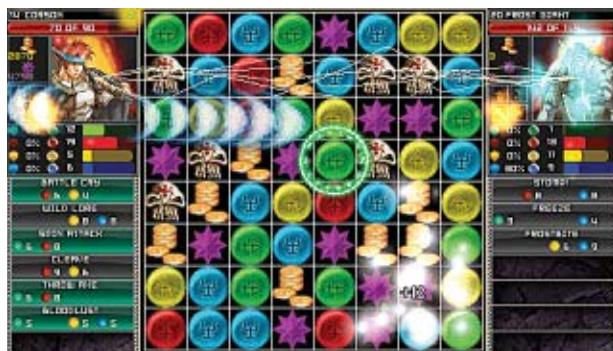
with whom you have both a good business relationship and a good personal relationship. For a developer to make great games, it needs both of those relationships to come into play at different times. For example, D3 insisted that we use focus testing to find new strategies for effectively increasing the game's audience. Until this point, I had considered focus groups to be the tool of the devil, and had I not respected and trusted the D3 group, I would have likely kicked and screamed, thrown a general designer tantrum, and tried my very best to ignore any results from the testing. And I would have been wrong to do so.

The take-away point is that the focus groups were right and the proof is in the sales. Had I been stubborn, we would have sold fewer copies. It's as simple as that.

Of course this is a two-way street, and the flipside is that D3 trusted us enough to let us make the final game design decisions. Certainly, feedback passed both ways during development, but the bottom line was that we let them focus on selling as many copies as possible, and they let us focus on making as good a game as possible. That's the way a publisher-developer relationship should work.

3 CHANGED THE NAME AND STYLE. Two very important lessons came out of the focus testing. First, the art style didn't have as wide an appeal as possible, and second, the name didn't feel quite appropriate.

Until this point, the game had been known as WARLORDS CHAMPIONS. When pitching new ideas, especially something



slightly offbeat like PUZZLE QUEST, it's helpful to attach something familiar to it, and in this case we opted to tap our WARLORDS franchise. The name recognition opened some doors for us and perhaps got us into a few pitches that might otherwise have been ignored, but the feedback we received from the first round of focus testing was that WARLORDS CHAMPIONS sounded like a fighting game when it was undoubtedly a puzzle game, even though there were Warlords and Champions in there completing the puzzles.

The final name, PUZZLE QUEST, derives from the same school of thought as the title *Snakes on a Plane*: Everything you need to know about it is summed up in two words. There are puzzles, and there are quests.

I've heard a number of people comment that the name is hokey, and it is in a way. But merging one casual game word with one hardcore game word is a simple and elegant way of



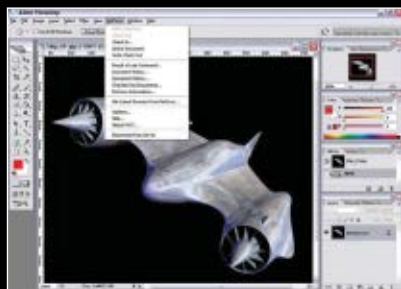


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getting the players' attention and letting them know what they're in for. The game's subtitle, CHALLENGE OF THE WARLORDS, tends to get dropped by virtually everyone, but it did serve its purpose of letting our history speak for the quality of the game.

The art style was a trickier prospect. WARLORDS has traditionally been a classic fantasy game, based on paintings primarily by Gerald Brom and Frank Frazetta. But to really open up the game's market across age and international boundaries, we felt that the game needed a new style. We tried Japanese-



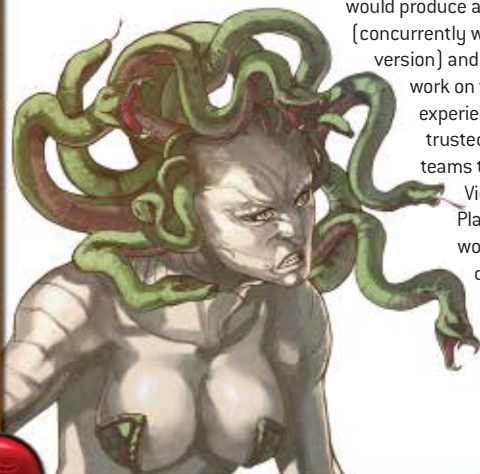
inspired anime, but finally decided on a lighter and more Western-friendly anime style that we all liked and would not alienate too many of our core customers.

All the art assets were reworked. A mini Renaissance in 2D game art is going on these days because the industry has heard such a fantastic response to the artwork. Of course not all our customers appreciated the change, but for every player we lost, at least three or four more have signed on.

4 EFFICIENT DISTRIBUTED DEVELOPMENT MODEL. Since PUZZLE QUEST was our first handheld game title, we decided that to lessen any risks, we at Infinite Interactive would produce a master version on PC

(concurrently with the Xbox Live Arcade version) and we would outsource a lot of the work on the handheld platforms to more experienced teams in the U.S. We trusted our publisher to choose two teams they were familiar with, such as Vicious Cycle on PSP and 1st Playable on DS, and then we worked closely with them to develop the title.

We kept a common codebase between the projects, with our own proprietary engine (SAGE)



being modified to become platform independent. We learned a lot about handheld platforms in the process. The efficiency of this model was so strong that we will probably use it again.

5 RELEASED A PC DEMO OF A HANDHELD GAME. I left this comment until last because it rightly belongs in both the What Went Right and What Went Wrong categories. Just days before the game's release, we made available a free downloadable demo of PUZZLE QUEST for PC.

Before that time, both the public and the gaming press had been a little ambivalent toward the game. The people who had been playing it fell in love with it, and others were beginning to prick up their ears as word of the game spread, but by and large we didn't then have the traction that we have now.

You can't beat the penetration of a small and freely downloadable PC demo, so we released one just three days before the game's official release. The demo shot to the top of download lists like crazy. Our site was on the verge of exceeding bandwidth for weeks afterward. We'll never be able to tell exactly how many of our sales resulted from the demo, but I'm pretty sure the number was significant.

But the demo also caused irreparable damage among some of our fan base once the game came out for the platforms we had originally targeted—and not on the PC. Our forums literally exploded: "Where was the PC version?" "Why was this game only available on DS and PSP?" "How could Infinite disrespect its loyal customers so much?"

I received at least six death threats and one bomb threat. It's tempting to laugh it all off because forum posters don't write those sorts of things unless they adore the game in question—it's sort of a backhanded compliment. But really, I felt devastated that we couldn't give players, many of whom had been our customers for years, what they wanted.

But it all goes back to trusting your publisher. The publisher has to be free to maximize its sales, and the PC demo helped to do just that. It was an uncomfortable situation to be sure, but I would make the same decision again. Whatever grievances we caused our loyal fans, I hope to make it up to them further down the line by staying in business and continuing to write good games.

WHAT WENT WRONG

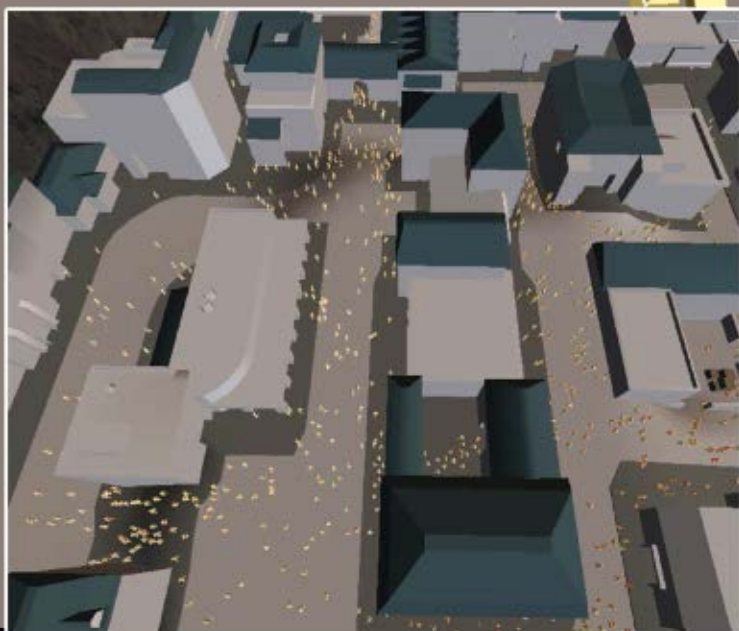
1 COULDN'T GET ENOUGH COPIES ON SHELVES. The runaway success of the title caught everyone by surprise. We knew the game was good, but sometimes the gaming gods just smile on you (though more often than not they simply don't). I actually had PUZZLE QUEST pegged to be a long and slow steady seller, so when I heard we ran out of copies in the second week I was flabbergasted.

Maybe this is one of those problems you don't mind having, but running out of games to sell does hurt revenue. If there aren't enough games to buy, then it stands to reason that you're losing sales. People who might have bought the game move on and buy something else; maybe they come back in a few weeks, maybe not.

CONTINUED ON PG 48



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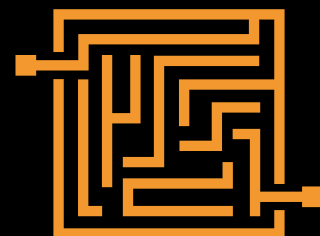
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no mind no game



CONTINUED FROM PG 46

I need to preface this next bit by saying that I'm both a game programmer and designer. I know nothing of the art of estimating how many copies to order in a print run (the sales and marketing teams must feel much the same way when they look at C++ code). Still, I think we'll all discuss the number of games to make available more closely in the future. Each of the three teams that are involved in this stage—the developers, marketing team, and sales team—could be doing more.

Developers, for example, know how to create a deep and addictive game, but they also have to make sure it has instant appeal, exciting those people in the distribution chain who only

have very limited time to examine the title. Marketers must identify potential hits and push them into the media more aggressively for early coverage. Good early press can lead to higher initial orders. And the sales team needs to get demos and pre-release builds of good titles into the hands of retailers early. Where all these things happened for PUZZLE QUEST, we were extremely successful.

Development Timeline

OVERVIEW

Development	30 percent of timeline
Polishing	70 percent of timeline

BREAKDOWN

Nailing down prototype	2 months
Tinkering with prototype until ready to show	4 months
Additional tinkering and adding about 25 percent of assets	6 months
Full production, adding all assets (original 25 percent of assets removed and reworked)	6 months
Polishing final game	9 months

party do not work. The bug slipped into the code just two days before final submission. It slid right past all the Q/A teams. I had always thought, naively, that good Q/A would catch these problems, but even with two excellent test teams working on the game, they both missed it.

This bug wasn't anything game-breaking—in fact, many people never notice that it's there at all—but nevertheless it's always disappointing to see a preventable bug sneak its way past decent software development practices.

Had we implemented some proper automated unit-testing (which we are now adding to our development process) it would have been caught instantly. The lesson we learned is that projects are becoming more complex, so automate everything you can.

3 UNDERESTIMATED THE AMOUNT OF WORK IN XBOX LIVE ARCADE. Remember how I said an Xbox was just a tricked up PC? I was wrong!

In an effort to give PUZZLE QUEST the love it deserved, we tried to cram every single Xbox Live multiplayer feature into the game. And we did! This is beginning to sound like it belongs in the What Went Right list, and if I were discussing how good the Xbox Live multiplayer gameplay is, then that's where it would go. However, the issue here was just how long it took and how much it cost.

The technical certification requirements (TCRs) for Xbox Live Arcade multiplayer are long, complicated, and extremely strict. We initially estimated one month to port that portion of the game from PC, but it blew out to almost four months. It's not like a PC at all. The environment might be similar, but the philosophies behind the user-experience couldn't be more different.

On a PC, the user has certain liberties to create things in a customized way, which is fine because the average PC gamer has a certain level of technical expertise. Sure, that expertise is sometimes small, but it exists. On Xbox Live Arcade, developers adhere to the TCRs rigidly because the customer is likely to be completely non-technical. My advice to any teams just getting into Xbox Live Arcade development is to read the TCRs over and over until you have them committed to memory. You may even want to run your design documents (especially the UI designs) past an Xbox Live Arcade Q/A team before implementing anything.

4 TROUBLE FITTING THE GAME INTO THE DS MEMORY. One of the biggest hurdles in going from PC to DS development is getting the memory requirements right. Surprisingly, this would have been easier for us 10 years ago when we were coming from the old MS-DOS environments and were accustomed to memory limitations. Programming modern PCs makes programmers lazy. We may write prettier and cleaner code, but it's very easy to get wasteful with both CPU and memory resources. Even simple things we take for granted, such as using STL containers, can cause nightmares on platforms where they are poorly implemented. (Yes std::list, I'm talking to you!)

Literally 75 percent of our time with the DS was spent trying to cram the game and its data into the available memory. This was not only an issue with RAM, but also with the save game on the cartridge. Fortunately, my background is in old-school DOS game development, and with the help of the team at 1st Playable, we rewrote huge chunks of code in the game to make it more efficient.

If you're working on a platform-independent engine, make sure everything runs through a cache: scripts, images, sounds, screens—everything.

Here's an example of the type of issue we found. Originally we committed to using a 4K save slot on the cartridge. Nobody told me they were 4K bits though; I thought it was 4K bytes when I agreed. We spent the next two months compressing the save files down to one-eighth their original size. I guess there's no substitute for experience in these matters.

5 DIFFICULTY GETTING THE STORY RIGHT. We made a conscious decision to write a generic good versus evil fantasy story for PUZZLE QUEST because I thought it would have very wide appeal. After all, we wanted everyone to be able to





follow along, including young children and very casual gamers who would only play 10 or 15 minutes every few days. But looking back, I think we could have done a much better job with it. The story is cited by most reviewers as one of the weaker parts of the game, and the more hardcore the reviewers, the more critical they are of the story.

How then to improve the story in such a way that we

keep its simple appeal, but still have some more meat for serious gamers? I think the solution is the same as it would be for any game design problem: Keep it layered like an onion, with the simplest parts on top and more complex things beneath. People will gravitate to the layer they are most comfortable with and will experience the game at that level. We are anxious to try out this theory in our upcoming projects.

Members of the Puzzle Quest team (L-R): Ben Caller (level designer), Andrew Castenmiller (assistant producer), Steve Fawkner (producer), Janeen Fawkner (producer), and Nikolas Bowe (lead Xbox programmer).



THE GAME MUST BE GOOD

PUZZLE QUEST has turned out to be a great success for us, not just in terms of sales, but also for the wealth of experience we've gained on new platforms. It has shown us new ways to create intellectual property, new ways to organize development



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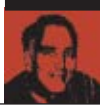
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GAME SHUI

STATUS SYMBOLS

Why human psychology should influence game designers

GAME DESIGNERS HAVE TO BE STUDENTS of human psychology to be successful in their work. For some, their own intuition and instinct is enough. I like to supplement mine with reading and discussion about the topic, particularly when it is about my favorite variant: evolutionary psychology.

One recent source of some good inspiration is Judith Rich Harris' 2006 book *No Two Alike: Human Nature and Human Individuality* (W.W. Norton & Co.).

SOCIAL SUSTAINABILITY

The book is primarily about recent research that suggests the home environment has surprisingly little effect on personality; what correlation there is

At the core of her theory is the interplay between three drives—an instinct to understand relationships between people, a desire to be part of social groupings, and a compulsion to seek high status of some sort within those groups. Here's how Harris puts it:

"Social categorizations define for children who their allies are and also who their rivals are. They want to be part of a group and to do what the other members do, but at the same time they want to be better than the other members of their group—they seek high status. The existence of these two conflicting motives is a clue that more than one mental system is involved."

The desire to be part of a group (in fact, many different groups) is fundamental to most people. We identify with our family, but also often with others of our gender, local community, school or work, religion, even other fans of our favorite sports team, often with surprising fervor.

Games have taken advantage of this drive to identify with groups. You see it in single-player games like RPGs where people often start by picking the race, gender, and profession of their characters, and you see it particularly in massively multiplayer online games because players can group with other real people. Providing groups to join and letting players know the qualities those groups have and the advantages and disadvantages of membership are good ways to engage players on an emotional level.

STATUS SEEKERS

Harris really caught my attention when she talked about the second drive, for high status. She characterized it with an internal monologue:

"I can't outdo my rivals by overpowering them? Then let me try something else. Maybe I can be the funniest, or the smartest, or the one who is best at identifying plants or hitting a golf ball. I can't be the prettiest? Then maybe I can be the nicest, and if that

doesn't work either, maybe I should try being the nastiest."

That immediately reminded me of my experiences in MMO play—and that last statement is an interesting explanation for why these games have "griefers" in them.

Designers of games with thousands of simultaneous players have learned to cater to this basic drive to seek status in many different directions, by making it possible for everyone to differentiate themselves. In the MMO world, people try to be the best (or funniest or richest or most infamous) on their server, or in their guild, or among their favorite raiding party. And designers have found that external displays of gained status are fiercely popular, even if it's just shown in the color of your name tag.

In *HABITAT*, the first graphic MMOG, an unintentional scarcity of one particular home decoration item (animated fish tanks) quickly transformed them into one of the most sought-after items in the game world.

MINDFUL BELONGING

Most of this will be familiar to MMO designers, but I find that conscious understanding of principles of psychology can often help me in those critical questions of "Which of these two features is most important?" Harris chooses to emphasize these three aspects of human nature.

1. Relationship. "How am I related to others around me, and how are they related to each other?"
2. Social Grouping. "What groups do people fall into, can I join them, and do I want to?"
3. Status. "How do I rank in respect to others, and how can I differentiate myself?"

Realizing that players will ask those questions, giving them the external symbols to make those questions meaningful, and the game mechanisms to act based upon them are essential to engaging those players on a deep level. ❖



EVERQUEST II players can identify themselves with a variety of groups.

seems to come mostly from genetic inheritance. What I found particularly relevant to game designers is the brain mechanisms she believes are responsible for our behavior in social groups.

NOAH FALSTEIN has been a professional game developer since 1980. His web site, www.theinspiracy.com, has a description of *The 400 Project*, the basis for these columns. Also at that site is a list of the game design rules collected so far and tips on how to use them. Email him at nfalstein@gdmag.com.



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SIGGRAPH 2007 BEST IN SHOW BY BIJAN FORUTANPOUR

SIGGRAPH, THE MASSIVE ANNUAL conference for the graphics arts community, offers more and more ingenuity to game developers year after year. The show, which at one time had a reputation for being for CGI artists only, is now a hallmark of all mixed media and creative technologies.

The displays from the San Diego-based Siggraph 2007 that we feel represent the Best in Show specifically for the game development community range from the commercial to the academic.

SHOW FLOOR EXHIBITS ZBRUSH

www.pixologic.com

Perhaps not surprisingly, Pixologic had one of the most compelling displays on the show floor as it demonstrated ZBrush

3.1. The tool's predecessor, ZBrush 3.0, was released earlier in 2007 to an eagerly awaiting community of game artists—and it did not disappoint. New features such as transpose, 3D projection, concept

sculpting, projection brush, lazy mouse, and others take ultra high resolution organic sculpting to a new level. The team at Pixologic has really succeeded in translating the feel of working with clay.

HOUDINI

www.sidefx.com

Side Effects Software has made a breakthrough with a complete user interface facelift, shedding its hardcore image of a tool written by programmers, for programmers. Houdini is now much more of an artist-friendly tool while also maintaining all its previous power and programmability. What makes Houdini an important consideration for the game development community is how it gives users the ability to prototype and previsualize gameplay, as well as procedural terrain generation. And for the game cinematics community, Houdini has added new rigid body and fluid simulation solvers as well.

TOBII T120 EYE TRACKER

www.tobii.com

Tobii's T120 Eye Tracker was a personal favorite.

Tobii is a Swedish company that has developed the most non-intrusive eye tracking system to date. No head gear, no wires, no visible cameras. Simply sit in front of what looks like a normal flat panel monitor, and the Tobii system will record precisely where the eye (and therefore the user's attention) is drawn. The Tobii Eye Tracker uses two hidden high speed cameras that are built into the computer monitor, along with computer vision techniques to detect and track eye movements. Such a system is invaluable in market research and in understanding where a video game player's eye is actually drawn and attracted. The result would be insight into where to focus development efforts and where to reduce effort.

ORGANIC MOTION STAGE

www.organicmotion.com

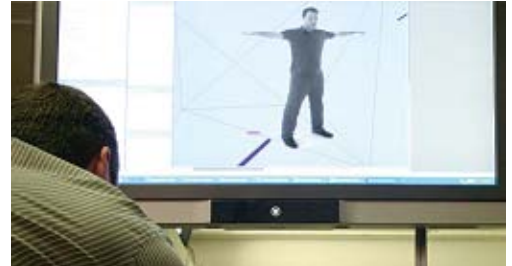
In an exhibit floor crowded with motion capture stages with magazine models in spandex suits and glowing markers, one booth stood apart. Organic Motion's Stage product uses Computer Vision techniques to do human motion capture without markers. Organic Motion debuted its first markerless motion-capture system at Siggraph 2006 and has been hard at work since, preparing Stage for its debut. The system seemed to work very well after a year of improvements, but one should keep in mind that there will be pros and cons to using marker versus non-marker motion capture systems. However, for human motion capture against a simple solid background, Organic Motion Stage is well worth investigating.

COURSES

MICROSOFT DIRECTX 10

www.gamesforwindows.com/en-US/AboutGFW/Pages/DirectX10.aspx

Siggraph 2007 offered one course that all game developers at the show absolutely



Motion capture output from Organic Motion's Stage product.

should have attended: a day-long session on what's new in DirectX 10. Microsoft DirectX 10 has made significant steps forward from version 9, and considering today's multi-monitor PCs, one of the more significant new features is the efficient handling of graphics cards that have multiple monitor outputs.

In DirectX 9, one could not share textures between devices, and one would have to upload a texture twice on a dual monitor card even though both adapters shared the same video memory. This limitation effectively cut the amount of texture memory in half if all textures are used on both adapters. DirectX 10 introduces the notion of outputs, and so a dual monitor video card looks like only one adapter, but with two outputs.

PAPERS

WAVE PARTICLES

www.cemyuksel.com/research/waveparticles

One of the few real-time papers presented at Siggraph 2007 was "Wave Particles," by Cem Yuksel, Donald H. House, and John Keyser. It's definitely worth reading. The authors present a real-time simulation of fluid surface waves that interacts with floating objects. Their algorithm is based on the concept of wave particles, which offers a simple, fast, and stable approach to wave simulation. The results were impressive, and the implementation details seem straightforward as well. ❄

BIJAN FORUTANPOUR is currently a senior graphics programmer. Email him at bforutanpour@gdmag.com.



Pixelogic's ZBrush sculpting tool.

product news.....

FX COMPOSER 2 AND PERFHUDD 5

NVIDIA Corp.

Nvidia has released a new version of its shader authoring tool FX Composer 2. Working in DirectX or OpenGL, developers can use FX Composer 2 to easily create shaders in the HLSL, COLLADA FX Cg, and CgFX shading languages. FX Composer 2 provides a user-friendly interface for artists with shader creation wizards and templates, drag-and-drop editing, and advanced scene manipulation. Nvidia is also bundling Mental Mill Artist Edition with FX Composer 2, allowing artists to utilize its graphical interface to create complex shaders without programming.

Also new to Nvidia's PerfKit suit of performance optimization tools is PerfHUD 5, a heads-up display that developers can utilize to monitor GPU signals, debug frames, and analyze frames in real-time. New features in the PerfHUD 5 update include support for Microsoft DirectX 10, Vista, and the GeForce 8 Series GPUs as well as the ability to edit shaders on the fly.

www.developer.nvidia.com

FUSION 5.2 AND ROTATION

Eyeon Software Inc.

Eyeon Software announced a 5.2 update for its Fusion visual effects compositing software. New to this version are a number of enhancements including support for OFX plug-ins, 3D LUTs, Python scripting, and a Vector Motion Blur tool. Used in the creation of cinematics for the upcoming HELLGATE: LONDON and HALO 3, Fusion is available for Windows 2000/XP and Linux. Eyeon also announced Rotation, a suite of tools that integrates with Fusion as well as other 3D animation applications to facilitate rotoscoping, keying, and retouching tasks for large production departments.

www.eyeonline.com

SPECAPC FOR 3DS MAX 9

Standard Performance Evaluation Corporation

SPECapc, working with Autodesk Corp. and 3ds Max animators, recently updated its performance evaluation software for 3ds Max 9. SPECapc for 3ds Max 9 is used to evaluate the performance of

hardware systems running Autodesk 3ds Max 9 and can be downloaded for free from the SPEC web site.

www.spec.org/gpc

MORPHEME 1.1

NaturalMotion

NaturalMotion announced an update to Morpheme, its new animation engine and 3D authoring application. Morpheme is an animation middle-ware package consisting of two parts, the Morpheme:Runtime animation engine and the Morpheme:Connect authoring application. Morpheme:Runtime provides a run-time engine optimized for PlayStation 3, Xbox 360, and PC as well as complete source code. Morpheme:Connect is a fully scriptable animation application that provides artists with a graphical environment for designing and testing a game's animation transition logic and blends. Both integrate with NaturalMotion's Euphoria Dynamic Motion Synthesis technology.

www.naturalmotion.com

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PROGRAMMING RESPONSIVENESS

RESPONSIVENESS IS SOMETHING THAT can make or break a game at first impression. This is especially true in reviews where a game with poor responsiveness will be described as “sluggish,” “unresponsive,” “floaty,” or “sloppy.” A better game might be called “tight” or “responsive.” Several factors contribute to perceived responsiveness, and this article looks at some of them from a programmer’s perspective, offering a few routes to making your game more responsive.

RESPONSE LAG

Response lag is the delay between the player triggering an event and the player receiving feedback (usually visual) that the event has occurred. If the delay is too

long, the game feels unresponsive. Several factors contribute to the length of this response lag. If your game is unresponsive, it may well be the cumulative effects of four or five different factors. Adjusting one factor

alone may not make a perceptible difference, but addressing all the factors can lead to a noticeable improvement. Players, and sometime even designers, cannot always put into words what they feel is wrong with a particular game’s controls. Often they will try to do something that requires some synchronization, but will fail, and they won’t be able to tell you “the event happened 0.10 seconds after my input,” but will instead say the game felt “slow” or “not tight” or “difficult.” Or they might not be able to tell you anything concrete, and simply say the game sucks, without really understanding why it sucks.

Designers and programmers need to be aware of response lag and the negative effect it has on a game, even if test players do not directly report it as a factor.

commonly a part of the logic task. I’ve kept it separate here because it’s important to see in what order things happen.

There are several ways a main loop can be structured. The simplest is shown in Listing 1, where we simply alternate between calling the logic and the rendering code. We assume that some frame synchronization occurs in the call to `Rendering()` and that we’re running at a fixed frame rate, usually 60fps or 30fps for an NTSC console game.

The main loop here also only shows half the story. The call to `Rendering()` is doing the CPU side of the rendering task, which is iterating over the environment and the object, culling, animating, sorting, setting up transforms, and building a display list for the GPU to execute. The actual GPU rendering is performed after the CPU rendering and usually is asynchronous, so while the main loop is processing the next frame, the GPU is still rendering the previous one.

So when does the lag come in? To understand the factors that contribute to lag, you need to understand the sequence of events that occurs from the user pressing a button to the feedback for pressing that button.

At the highest level, the user presses a button; the game logic reads that button press and updates the game state; the CPU render function sets up a frame with this new game state, then the GPU

“It’s not how fast a player reacts to the game; it’s how fast the game reacts to the player.”

WHY LAG HAPPENS

To understand why lag occurs, you need to understand the sequence of events that occur from the time the user presses a button, to the time the results appear on screen. To understand this, we need to look at the main loop structure of the game. The main loop performs two basic tasks: logic and rendering. The logic portion of a main loop updates the game state (the internal representation of the game objects and environment), while the rendering portion creates a frame that’s displayed on the television. At some point in the main loop, usually at the start, we also get input from the user, which is sometimes considered a third task in the main loop, but is also

LISTING 1

```
The Simplest Main Loop
while (1) {
    Input();
    Logic();
    Rendering();
}
```

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renders it; and finally this new frame is displayed on the screen.

Figure 1 shows this sequence graphically. Sometime in Frame 1, the player presses a button to fire a gun. Since the input processing has already been done for that frame, this input is read in Frame 2. Frame 2 updates the logic state based on this button press (a shot is fired). Also in Frame 2, the CPU side of rendering is performed with this new logic state. Then in Frame 3, the GPU performs the actual rendering of this new logic state. Finally at the start of Frame 4, the newly rendered frame is presented to the user by flipping the frame buffers.

So how long is the lag? It depends on how long a frame is (where a "frame" here is a complete iteration of the main loop). It takes up to three frames for the user's input to be translated into visual feedback. So if we are running at 30fps, then the lag is 3/30th or one-tenth of a second. If we are running at 60fps, then the lag will be 3/60th or 1/20th of a second.

This calculation illustrates a common misconception about the difference between 60fps and 30fps games. Since the difference between these two frame rates is just 1/60th of a second, people assume that the difference in responsiveness will also be 1/60th. But in fact, going from 60 to 30 does not just add a vsync to your lag, it acts as a multiplier, doubling the length of the process pipeline that's responsible for lag. In our ideal example in Figure 1, it adds 3/60ths of a second, not 1/60th. If the event pipeline is longer, which it quite possibly can be, it can add even more.

Figure 1 actually illustrates the best possible sequence of events. The button press event is translated into visual feedback via the shortest path possible, which we can clearly see in the

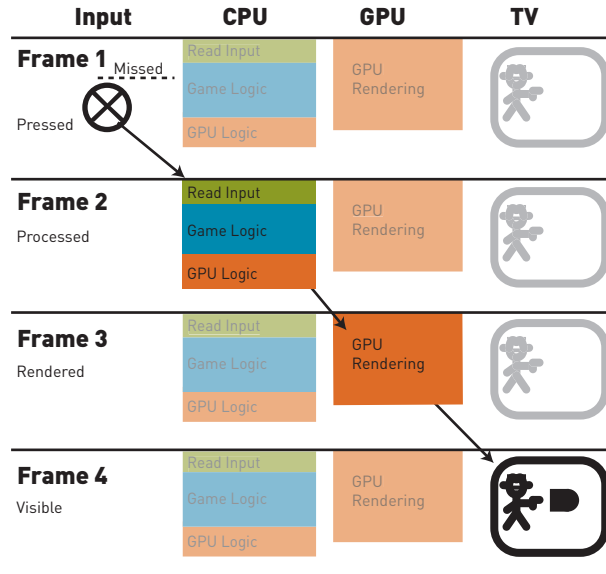


FIGURE 1 When a player presses a button, the game can take three frames (in the best case) to create visual feedback and programming problems can introduce additional frames of lag. The actual lag time is multiplied by the length of a single game frame.

they do in the game. It's quite easy to introduce additional frames of lag (meaning an extra 1/60th or 1/30th of a second delay), by not paying careful attention to the order in which events occur.

As a simple example, consider what would happen if we switched the order of the Logic() and Rendering() calls in our main loop. Look at Frame 2 of Figure 1: here the GPU logic (rendering) happens after CPU logic, so input at the start of Frame 2 will affect the CPU logic and hence the GPU logic in the same frame. However if GPU logic is performed first, then the input will not have an effect on GPU logic until the next frame, hence introducing an extra frame of lag. While this is a novice mistake, programmers need to make absolutely sure it's not happening.

Extra frames of lag can be introduced in a subtler manner as a result of the order of

world using a physics engine, and handle events that are raised due to this update (such as collision events). In this situation, the sequence of input or logic looks like Listing 2.

Event handling via messages is a very nice way of decoupling systems and a programmer might decide to use it for the player control events. To fire a gun, the HandleInput() function will fire an event telling the gun to fire. The HandleEvents() function will take this event and cause the gun to actually fire. But because the physics update has already happened for this frame, the effect on the world state will not be incorporated until the next frame, hence introducing an extra frame of lag.

MORE LAG CAUSES

Lower level action ordering can draw out the lag even more. Consider a jump, for example. The feedback is the character actually moving. To make something move in a game, you can either set the velocity directly or apply a force to it, such as acceleration or, more likely, a

momentary impulse. There's a problem in this scenario if your physics engine updates positions before the velocity change is applied, a common condition in many introductory game programming tutorials. Although the velocity of the jumping object is updated in the same frame as the one where the input event is handled, the object will not actually begin to move until the next time around the loop—on the next game frame—and so it introduces an additional frame of lag.

Remember, these are cumulative problems that can be difficult to discern in isolation, but the combined effect can make your game controls turn to mush.

Suppose you had made all three mistakes listed above: you do rendering before logic, you handle logic events after advancing the physics state, and you update position before velocity. That's three additional full iteration of the main loop, in addition to the three you already have built in—six frames of lag between the player pressing a button and seeing the result on screen. At 60 frames per second that's 1/10th of a second, which is bad enough, but if the game is running at 30fps, the lag is *doubled* to an unbearable 1/5th of a second, or 200 milliseconds.

Other factors can contribute to lag, further compounding the consequences. Movement can be driven by animations, with velocity changes built into

“ One of the great misconceptions regarding responsiveness is that it's somehow connected to human reaction time. ”

sequence of events. As a programmer, being familiar with the order in which things happen is a vital part of understanding why things act the way

operations within the game logic. In our example, we are firing a gun. Now perhaps our engine is set up to increment the position of the objects in the

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“ These are cumulative problems that can be difficult to discern in isolation, but the combined effect can make your game controls turn to mush. ”

specific time points in an animation. For example, if the animator places the jump velocity impulse a fraction of a second into the animation to better match the visuals, it might look better, but it feels bad. The animator can correct it by making sure the velocity impulse is on the first frame of animation when the player needs that immediate feedback. But then the question is how does triggering an animation translate into actual movement?

It's quite likely that animation updating is handled by the Render() function. Any events triggered by the animation will not be handled until the time around the loop, which adds another frame. In addition, triggering an animation might not make it advance a frame until the next frame, delaying the event firing for a frame. Our lag could potentially be increased from six to eight frames, which would be quite unplayable, even at 60 frames per second.

That's not the end of it either. There are many other ways in which extra frames of lag sneak their way into a game. You might be pipelining your physics on a separate thread (or a physics processing unit). What if you're using triple buffering to smooth your frame rate? You could be using abstract events that take a couple of passes through the system to resolve into real events. You might use a scripting language that adds an additional frame in the way it waits for an event. It's quite possible to make your game logic incredibly flexible by abstracting various concepts of time and events, and yet while doing this, programmers can lose sight of exactly what's going on under the hood, making it far easier for additional frames of delay to creep in.

LISTING 2

Physics Update Is Followed By Event Handling

```
void Logic() {
    HandleInput();
    UpdatePhysics();
    HandleEvents();
}
```

**RESPONSIVENESS,
NOT REACTION TIME**

One of the great misconceptions regarding responsiveness is that it's somehow connected to human reaction time. Humans cannot physically react to a visual stimulus and then move their fingers in less than one-tenth of a second. Game players' peak reaction times vary from 0.15 seconds to 0.30 seconds, depending on how "twitchy" they are. Quantifiables such as these are often brought up when discussing game responsiveness, but the connection is specious.

It's not how fast a player reacts to the game; it's how fast the game reacts to the player. The issue is not one of reaction times, but of synchronization. Take GUITAR HERO, for example, a game in which symbols come at you, the player, and you have to hit the correct button at a very precise point in time (when the target object is within a particular region). You are anticipating the future event, and there is no reacting involved at all. The problems of lack of responsiveness occur when the game does not react fast enough to the player and the target object has moved beyond the target region by the time the event occurs. If you press the button at the correct time, you do not expect the object to move even a few more pixels before it explodes. But since objects generally move at least a few pixels per frame, having a few frames of lag can permit the object to drift past its target.

Many action games are based around anticipation and button pressing. In a skateboarding game, you want to jump just before you hit the end of a rail. In a first-person shooter, you fire the instant someone moves in front of your gun. Again, this is not reaction time. You usually have seen the target at least half a second before you shoot it, probably more, and will be either moving the gun, or waiting for the target to move in front of the gun.

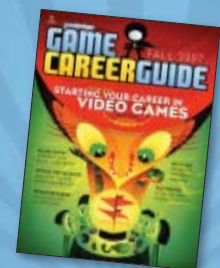
Because of the somewhat unintuitive nature of these problems with responsiveness, it is important for programmers to fully understand the issues. The most important thing is to be able to clearly describe the frame-by-frame path through logic and rendering that a button-triggered action takes before it creates visual feedback. Once you have this, you can optimize it as close to the optimal pathway as possible. ❌



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STEVE THEODORE

PIXEL PUSHER

SUMOTORI DREAMS

The future of animation

IT'S KIND OF EMBARRASSING TO ADMIT IT

in this age of zillion-processor, multi-gigabyte, atomic-powered game consoles, but the coolest new thing in game animation today comes in a mere 96k. SUMOTORI DREAMS (see Figure 1) is a surreal little byproduct of the European demo scene. Hungarian gamemaker Peter Sotesz created this sumo wrestling game in which two robots face off in a simple ring. What makes SUMOTORI DREAMS so compelling and so hilarious is that all the motion is generated by a physics simulation, not by conventional keyed animation or motion capture.

This tiny game is impressive due to the subtle ways in which the characters interact with each other and their environment. When a wrestler falls out of the ring and smashes through one of the surrounding walls, the chaos feels altogether right. It's solid in a way that few games can manage.

The hilarity comes from the fact that the characters' efforts to balance and propel themselves are, let's just say, a praiseworthy early attempt at fully procedural animation. The wrestlers are rarely able to respond precisely enough to stay on their feet for long once the match begins—they are always just a tad too slow to compensate for uneven footing or an awkward pose. The result looks like the tail end of a GDC after-party—un-damped physics reactions occasionally send a wrestler floating into



FIGURE 1 Peter Sotesz's remarkable SUMOTORI DREAMS crams physics based animations into 96 kb.

the air as majestically as a triple-A shooter budget.

SUMOTORI DREAMS is a great way to waste some time (amazingly, the game supports a multiplayer mode and large screens, despite having a smaller memory footprint than the YouTube videos of it). More than that, though, it offers an opportunity to ponder exotic animation technologies and what they might mean for the future of games animation.

A DECADE (OR TWO) BEHIND

Out of all the game arts, the most technically oriented is, surprisingly, also the most conservative. Pretty much all the core game animation technologies date back to the mid 1990s. Any artist is aware, often painfully so, that 3ds Max and Maya are both products of the last millennium. But skeletal animation itself is equally creaky—it has been around in one form or another since Infogrames' ALONE IN THE DARK (1992).

There have been a lot of technical advances in motion capture in the dozen years since BIOFORGE debuted the technology in 1995, but the main outlines of what you can do with motion capture haven't changed since the pioneering work done by Acclaim in the early 1990s: suit up, clean up, and apply the resulting FK animation data to an animation skeleton.

We've seen a gradual increase in the availability of real-time IK, although it's

hardly ubiquitous even today.

Unfortunately the interesting and sophisticated work being done on full-body IK in products like Sega's Animanium, Autodesk's MotionBuilder, or even perennial underdog Hash Animation Master, hasn't made big inroads into real-time animation yet.

The one seminal change in the animation landscape since the mid '90s is the advent of physics-based animation, and even that is technically positioned in that bygone decade. 1998's nefarious JURASSIC PARK: TRESPASSER was a brave, but doomed attempt to build an entire game and animation system around real-time physics and IK, including the birth of animation's newest cliché, the rag doll (see Figure 2).

Like HDR bloom and lens flare before it, rag doll has been beaten to death. But like both physics-based animation and mocap, rag doll is much more than a gimmick or cheap way around hand-authoring death animations. Every cartwheeling zombie who flails into a flying saw blade is actually bumbling toward a whole new realm of animation.

'KEEP YOUR CODE TO YOURSELF'

Animators are generally pretty skeptical about any tech that trespasses on their turf. Certainly, neither bumbling robot rikishi nor the rubbery heroine of

STEVE THEODORE has been pushing pixels for more than a dozen years. His credits include MECH COMMANDER, HALF-LIFE, TEAM FORTRESS, and COUNTER-STRIKE. He's been a modeler, animator, and technical artist, as well as a frequent speaker at industry conferences. He's currently content-side technical director at Bungie Studios. Email him at stheodore@gdmag.com.



FIGURE 2 The elastic heroine of JURASSIC PARK: TRESPASSER demonstrated some of the pitfalls of relying too heavily on simulation for animation.

TRESPASSER will win a beauty contest with a well done piece of hand animation or mocap today. Even so, if you care passionately about the future of the medium, there's a lot to grumble about in the current status quo and a lot of reasons to think about alternative ways to bring characters to life.

Sure, our standard animation technologies do a great job playing back animation. But when we try to move beyond mere playback into the realm of interaction—you remember, that thing that's supposed to separate our medium from our ballyhooed competition in the film world—it turns out we haven't progressed very far at all.

Though fully rendered in 3D, our characters can react to their worlds in only the most pre-scripted ways. They bumble around, trapped inside their bounding volumes like barrel-wearing hoboes from an ancient vaudeville routine—or worse, like a nickelodeon loop of a vaudeville show playing the same thing over and over forever. No matter how good that run

cycle looked the first time you laid it down, by the thousandth repetition, a lot of the magic has gone out of it.

The fact is variety and customized interactions are expensive. Standard animation technology makes empowering characters to interact with the world dauntingly costly, both in terms of runtime and money. Each new behavior we create for a character means, of course, both animator time and storage memory. But it also demands more animations: transitions, directional variants, overlays, and interrupts. Add the combinatorial nightmare of multiple types of equipment and outfits, and you'll soon need a spreadsheet just to keep track of all the extra work. Unhappily, most of that work is drudgework, with few opportunities for creativity and many loose ends to keep track of. It's no wonder most of our characters stick to the old idle-walk-shoot-die routine, unable to vary their behaviors, adapt to unfamiliar terrain, or interact with each other in unscripted ways.

INTERACTION IN ANIMATION

There's a pent-up demand for more interactivity in games. A football game in which every play is unique! A beat-'em-up where every blow creates a dynamic response! An action game in which the players scramble through a crowded set as kinetically as Hollywood action stars! These all make designers salivate with anticipation and reviewers reach for new superlatives. Check out the “gee whiz” reception LucasArt's upcoming INDIANA JONES title (see Figure 3) has generated. That kind of demand is going to change the way animation is done, in the same way that sexy shaders and bigger textures have pushed the arts of modeling and texturing.

One of the enduring legacies of the “motion capture wars” of the last decade is an ingrained feeling among animators that reality isn't really as interesting as it ought to be. It needs a little help from a key-framer to make it presentable. It's hard enough to get an actor in a Spandex suit to convey the fantastic and larger-



FIGURE 3 LucasArts upcoming *INDIANA JONES* game has generated a lot of buzz for its attempts to integrate animation and physics.

than-life stories we want to tell, so one can be forgiven for thinking it'll be even harder to browbeat a passel of physics and AI calculations into doing it for us. Against this backdrop, there's a real danger that animators will let the technology evolve on its own instead of becoming actively involved in finding ways to create that fabulous interactive future, which, for the record, would be a bad thing.

Animators' jobs are morphing beyond the traditional role of just setting key frames. You can see this already happening in the rise of applications like NaturalMotion's Morpheme and Havok's Behaviors, which are designed to encourage artists to take control of not only the individual animations a character plays, but also the complex web of interactions between those animations.

Until recently, transition logic tended to be hard-coded or stored in incomprehensible text files. Nowadays, many of us feel the interactions between animations are as much a part of the player's experience of our characters as any action cycle and that they deserve as much artist attention. The rise of physically-driven characters will only intensify this evolution. In the next few years, someone is going to have to make a lot of decisions about how characters behave outside of the "sprite frame" of canned animations. If animators aren't actively involved, coders and designers will be making those decisions—without input from the people who know and care the most about character and emotion.

Game animation has always been defined by a series of trade-offs between the artistic vision of the animators, the gameplay ambitions of the designers, and the technical limitations of the engine. Unlike rendering, which rarely interferes with gameplay directly, the timing and limitations of animation are central to feel of any game. A truly "realistic" animation system wouldn't allow player characters to run 40 miles per hour, stop on a dime, and then air-steer while jumping backward. But any animator with more than a week's experience in the game industry knows that designers (or more importantly, players) will gobsmack reality to keep their precious superpowers.

1999's *PRINCE OF PERSIA 3D* is the classic cautionary tale, a game whose animation was well ahead of its time, with high quality motion capture and a very extensive library of transitions, but which was denounced by players who couldn't stand realistic constraints on movement. Any successful synthesized motion system will have to cope gracefully with the impossible demands that players and designers will make of game characters. To do that, the system will need a lot of help from animators who are already experienced in making tough trade-offs between realism, gameplay, and aesthetic appeal.

KEEPING IN STEP WITH TECH

For all these reasons, now is a critical time for animators who care about the

promise of interactive animation. The only thing we ought to fear is being left behind.

Any animator who wants to influence the future development of tools must understand one thing: what's out there now. A great laboratory for animators interested in how physics and animation converge is the free Learning Edition of NaturalMotion's Endorphin, one of the first packages to offer dynamics-driven animation. Besides offering some options for SUMOTORI-esque physical comedy, the chance to peek under the hood and see what you can get characters to do in a physics-driven system is a great education whether your team is interested in NaturalMotion's products or not. Steel yourself for a lot of number twiddling and esoteric physics terminology, but at least the company's web site also offers a number of tutorial videos to get you past those scary numbers.

Animation is a very strange discipline, even compared to the other games arts. Where most other artists are used to making relatively straightforward trade-offs between resources, time, and artistic effect, animators are also constrained by the sensibilities of players and designers who have very different and often profoundly inconvenient priorities. The addition of new technologies like physics to the mix is going to make this already peculiar realm even stranger.

The classic conundrum of game animation is that it's supposed to look like physics, but we don't usually want it to be physics. We all appreciate a well done bit of secondary animation, but given the choice between a correctly simulated fall and an expressive and well acted fall, we'll take the theatrics every time.

Even when we get to the point where we could get a fully functioning simulated character running in a game, we'll still have to find ways to make that simulation convey emotion as well as physical plausibility. In the meantime, the mixture of technical adaptability and sheer bullheadedness that makes a game animator successful isn't going to be available on CD-Rom for a while yet. ❖



JESSE HARLIN

✦ AURAL FIXATION

AUDIO ACCESSIBILITY

WHILE MIXING GAMES, WE AUDIO

professionals often take great strides to ensure that a player with a basic listening environment will have as rewarding an audio experience as someone with a fully tricked-out surround sound home theater would. Unfortunately, we tend to make one major assumption with this approach and—whether consciously or not—ignore the inherent frailties of the human body.

At best estimates, there are approximately three million Americans between the age range of 3–34 that are either deaf or hard of hearing. This covers anyone from those who can understand shouted speech to those who are completely deaf. At the dawn of PC and console game development, technological limitations actually went a long way toward fostering an inclusive

era of game accessibility (GA) for all. Actions, dialog, and game mechanics were frequently text-driven events. As disc space increased and game technology improved, text was replaced with recorded dialogue

or sound effects. Unfortunately, hearing-impaired gamers quickly found themselves losing many of the gameplay conventions they had come to count on for relaying critical information.

LOOK AND LISTEN

One of the easiest solutions to the problem of visually representing sound in next-gen software is the inclusion of closed captioned text in-game. The concept of closed captions is borrowed from the world of television, and is manifest as lines of text on screen, which represent any dialog, sound, or music

that has been programmed to appear.

Most common is the practice of captioning cutscene or in-game dialog. However, any sound that can be described can be captioned. Additionally, closed captions can be color-coded in order to aid in the clear demarcation of player sounds versus environmental sounds, for example.

Unfortunately, very few games are completely captioned. Only four commercially released games have included a full closed captioning system, the most widely known of which is HALF-LIFE 2. However, the GA community is a very active one and mod projects exist to expand the number of captioned games. In 2006, the IGF nominated Games[CC]'s DOOM3[CC] for best DOOM mod of the year.

Text isn't the only way to represent sound, however. In addition to closed captioning, various other feedback systems can be built into the game to approximate, augment, or substitute for audio in ways that benefit hearing players as well. Cartoon-y visualized hit impacts such as those found in games like ALIEN HOMINID and VIEWTIFUL JOE add to the games' art styles while offering a silent way to know that weapon fire connected with an enemy target. In-game icons and radar like those used in the METAL GEAR SOLID franchise convey changes in enemy AI threat states just as effectively as their accompanying alert sounds or changes to the interactive music score. Blinking HUD elements such as low health or ammo are a common component to first person shooters that are often accompanied by beeping auditory feedback. Even the use of a console controller's rumble feature can be used to express any number of audio elements from explosions to lock picking to an overheating engine.

SOUND IT OUT

At the other end of the audio experience spectrum, there are visually impaired gamers. Approximately four million Americans between the same consumer age range are blind or visually-impaired. For visually impaired gamers, an entire

cottage industry of "audio-only" GA games has sprung up to meet their needs, the vast majority of which can be found at AudioGames.net.

Audio games are devoid of any graphic representation and convey all gameplay information through a diverse range of auditory feedback. Weapons, UI options, character locomotion, inventory statistics, and relative position within the game world are just a few of the traditionally visual pieces of game data represented strictly through audio. Additionally, audio games span the full gamut of genres ranging from puzzle games to racing games to third-person action games such as Studio Hunty's IN THE PIT.

Spend some time with audio games and you'll notice a number of conventions which can be applied to all game development. Perhaps the most important is how critical spatial sound becomes when a game lacks visuals. Many audio games rely on the placement of objects within a stereo or surround sound field as a major design element to the gameplay. Abstract and esoteric sounds, especially within the UI, hurt the gameplay experience. Contrarily, individualized and consistent sounds—such as barrel explosions or differentiated enemy hit impacts—serve as auditory anchor points that define in-game actions, aid in perception, and provide immediately recognizable feedback to the player.

GAMES FOR ALL

It's important to keep in mind that game accessibility isn't strictly about contributing to the gaming experience of disabled gamers. As Reid Kimball, creator of the DOOM3[CC] mod and a colleague of mine at LucasArts, states, "GA equals 'games for all,' in my opinion," and that's a sentiment commonly found throughout the GA community. Closed captions can help younger children learn to read, clarify foreign language or heavily accented dialog, and add an additional important piece of gameplay feedback for a richly immersive environment. For designers, audio-only gameplay represents a largely unexplored area of game design. ✦



Games like DOOM[CC] can describe in-game sounds for hearing-impaired gamers.

JESSE HARLIN has been composing music for games since 1999. He is currently the staff composer for LucasArts. You can email him at jharlin@gdmag.com.

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SUCCESSFUL OUTSOURCING

WHEN WE THINK OF OUTSOURCING WE often think of one thing first: price. But there are a multitude of factors beyond price that will determine the degree of success for your content creation needs.

Success is critical when you consider the growing importance of outsourcing in game development. *Screen Digest* estimates outsourcing will grow from \$1.1 billion this year to \$2.5 billion in 2010, and with good reason. When you consider the benefits of working with a capable partner who can create your game content on demand with no fixed personnel costs between projects, outsourcing is extremely appealing. Most next-gen projects demand a high volume of high quality content and few studios can afford to carry enough full-time qualified talent to satisfy these needs. But outsourcing is not without its risks.

WHAT YOU NEED TO KNOW

Know what you want. Do you want a partner to help you design your content pipeline? Do you need both high volume and high quality? Then you need a higher-end, experienced partner with strong management structure. If you require high quality but low volume, you may be able to work with a boutique house with good talent but less infrastructure. If a high volume of lower quality content is needed, then evaluate options in low cost countries—but don't forget the extra management you'll need on your side to handle this.

Know your specs. If you're still unsure of your art specs it's too early to start

producing content. Some content houses can help you define your specs, although you'll pay for the service. If you're unsure of your own capabilities, it's cheaper to pay for that service than to pay twice for your content—once to produce it to the wrong specs, and once to correct the mistake.

Know your partner. When evaluating content creators, look beyond the assets in their portfolio. Have they worked on similar projects to yours in a similar capacity? Have they worked with your game tech? How experienced is their management? Go visit their studio to ensure they operate a real office with onsite employees. Get to know them. If they don't welcome a visit, something's wrong. How secure is their building and network? What is their content management system? If your project hinges on their ability to execute, you don't want to take chances.

Know thyself. Are you a design-driven studio or a spec-driven developer? If your answer is both, chances are that you're kidding yourself. Most studios favor one or the other and realistically assessing this will help you pick the right partner. If you're design-driven, your specs will organically evolve. You'll want a partner who can either help you impose structure on process to keep your creativity within feasible bounds, or who can work with you in the spirit of creativity on a retainer basis, rather than an asset-milestone basis. If you have tight specifications, you will be able to work with a wider range of outsourcers since you won't have to depend on their process and technical expertise as heavily.

Know who's in charge. Working with external parties tests your management structure and process. For a project of any scope don't assume that you'll be able to part-time manage your content creators—put someone qualified on the relationship full-time and realize that it's part of the cost of doing business. Be

Five Rules So Obvious You Might Ignore Them

1. Ensure your project estimates are based on realistic internal speed tests.
2. Projects will take longer to ramp up than you want. Budget for it.
3. Changing project scope and specs in mid-stream will cost you money and time.
4. Make sure files don't have dependencies that will hamper external partners (like wanting to connect to an external hard drive).
5. Brief your partner on hardware and software limitations beforehand—not just Max or Maya but also specific graphic cards or hardware that may be required.

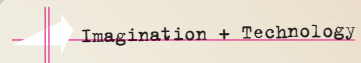
sure to have an adequate number of people allocated to do O/A on the work that is being produced externally.

Know how to communicate. There are two huge communication variables for external vendors: time difference and language/cultural differences. If your partner is halfway around the world, it's going to take a day to communicate, then a day to get a response. Build that into your schedule. How good is the English of your partner? If it's not strong, you're going to have to work harder to communicate what you need, including what you mean in your feedback. Cultural differences will also come into play—how will someone from Shanghai interpret your brief for a gritty New York street scene? The golden rule at Streamline is to over-communicate everything and assume nothing.

Know the total cost of ownership. Until you know what level of integration the content creator will deliver, you don't know their full cost, even if you know their exact man month rate. Can the studio test and integrate the assets in-engine? Or will they arrive 70% complete with your valuable in-house artists forced to polish and complete the project, with an opportunity cost as well as a financial hit for your company? Don't forget that your schedule will also get pushed out when you have to re-work assets. ❖

DAVID C. LEE is vice president of Streamline Studios, an independent developer and provider of next-gen content for the games industry. He previously worked at Electronic Arts as a PR director and senior product manager. Email him at dlee@gdmag.com.

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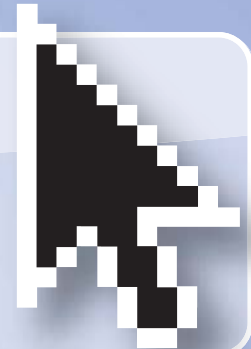
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