Believable Characters: Are AI-Driven Characters Possible, and Where Will They Take Us?

Moderator
Stephen Gray (Electronic Arts)

Panelists
Eric Armstrong (Electronic Arts Canada)
Gregory Garvey (Quinnipiac University)
Andrew Stern (InteractiveStory.net)
Frank Vitz (Electronic Arts)

Processing power is increasing as fast as player expectations, which raises far more questions than answers:

* Where are we (and our characters) going with artificial intelligence?
* How is interactive entertainment changing in games for Playstation3, Xbox2, and massive multiplayer, online role-playing environments?
* How does AI affect development of emotionally believable characters?
* How can we prioritize and balance graphic techniques to support perceived realism in a character?
* Are there rules or guidelines we can distill from the more successful game characters?
* What are the subliminal tip-offs that spoil the illusion of credible characters?

In this panel, industry experts, artists, character animators, and programmers share their insights and help us sift through the graphics-technology clutter to uncover some believable character gems and answer some fundamental questions.

Position Statement: Stephen Gray

Creating believable characters is a challenge for all forms of media. In traditional media this is a challenge that is met by writers, production designers, actors and directors. In the new interactive media that challenge expands to include digital artists, engineers and game designers. This panel will discuss how to best take the skills and knowledge from the traditional media and blend it with the latest state of the art in digital content creation and engineering. The panel consists of individuals with varied backgrounds encompassing both traditional and interactive media, from the film production world to game development to cutting edge academic research.

Biographic Sketch: Stephen Gray

Steve Gray has a varied past in computer graphics and media production. Starting at 14 developing video games for early PCs, he got his first taste of the big time at Robert Abel & Associates - one of the pioneering companies in visual effects and computer graphics. He went on to work at other well know visual effects companies such as Rhythm & Hues and Digital Domain before making the jump back to video games in the mid-90s. His first success in the new media came as Director of Square's hit RPG Parasite Eve. More recently he has been Development Director and now Executive Producer of the The Lord of the Rings games for Electronic Arts.

Position Statement: Gregory Garvey

Jeepers, Creepers where did you get those Veepers? Byron Reeves, Director of the Center for the Study of Language and Information at Stanford University argues that successful online interaction and human-media interactions are a social activity that engages users' social competence. Programmed to exhibit social intelligence and emotional responsiveness, virtual characters are "persuasive, arousing(!), engaging, increase trust and provide a sense of friendliness that contributes to a personalized experience." All of this can be put at the service of the business plan or a political agenda. "The personality of an automated character is one of the strongest and most reliable methods to consistently promote brand awareness through predictable appearance and scripting of speech and behavior. And unlike real-life counterparts, characters never have a bad day or deviate from the script." Jeepers!

Ushering in our sunny post-human future, virtual customer assistants and similar synthetic sales forces are rapidly being deployed. Marketeers can select the racial and physical characteristics of these silicon sales reps to appeal to the target demographic. Veepers can be made to say anything that a PR puppet master desires and their ability to respond to a user's interaction in real time contributes to their proven effectiveness in online advertising. When faced by the psychologically persuasive Veeper, the (guileless?) consumer is three times more likely to reveal personal information and twice as likely to make purchases online.

Will Veepers someday pass the Turing Test? Can they fool some of the people all of the time? Are they harmless simulations or really about the capacity to deceive? Will politicians claim that Veepers are semi-conscious? As with the corporation in 1886 will Veepers be accorded the legal status of personhood with full constitutional rights? When Veepers succeed in manipulating consumers or public opinion, who benefits? The shareholders? The public? The politicians?

Biographic Sketch: Gregory Garvey

Greg Garvey is full Professor in the Department of Computer Science and Interactive Digital Design at Quinnipiac University in Connecticut. He teaches programming with ActionScript, 3D computer graphics, animation and motion capture using MAYA, Motion Analysis EvaRT and MotionBuilder. At the Digital Media Center for the Arts at Yale University he created the VELVIS project, making a virtual Elvis using face2face motion capture software. He has contributed frequently to SIGGRAPH since 1990. His work "Decline and Fall" was shown in the Art Gallery in 2004. In

1995 in organized the panel "Grids, Guys and Gals: Are You Oppressed by the Cartesian Coordinate System?" For SIGGRAPH 93 he exhibited "The Automatic Confession Machine: A Catholic Turing Test" as part of"Machine Culture". He frequently writes and lectures about virtual beings and their potential shortcomings.

Position Statement: Andrew Stern

Everyone wants more richness and reactivity in AI-driven characters. However, cleanly and elegantly managing the complexity of intermixing hierarchies of AI agent behaviors is very hard. Furthermore, contemporary game designs will need to adapt and grow to make use of sophisticated believable characters. For example, new directions in interactive narrative need to be researched and developed, in tandem with advances in believable characters themselves.

In a serious effort to take the bull by the horns, we have recently completed five years of research and development on the interactive drama Façade. Façade is comprised of a novel AI architecture and set of expressive programming languages that integrate emotive, believable conversational characters, "story beat"-based drama management, robust natural language understanding, and a non-photorealistic animation engine with procedural, emotional facial expression. Within this hybrid architecture we have designed and authored a small but complete, richly interactive, dynamic one-act drama, released in May 2005 as freeware.

Façade includes A Behavior Language (ABL) for authoring AI-driven believable characters, an implementation and extension of research from the Oz Project at Carnegie Mellon. ABL, to be publicly released in 2005, is a parallel programming language designed to make simple character behavior easy to author with just a few lines of code, while still providing the power to let experienced authors write complex, expressive behavior. ABL's support for joint goals and behaviors helps the author to harness the expressive power of multi-agent teams of characters.

Our motivations for building Façade are to find out what it takes to build an interactive drama with believable characters, to have Façade hopefully serve as a compelling example of this new genre, and to publicly share the technology and design lessons we've learned.

Biographic Sketch: Andrew Stern

Andrew Stern is a designer, researcher, writer and engineer of personality-rich, AI-based interactive characters and stories. With Michael Mateas he developed the interactive drama Façade, a 5-year art/research project, completed in May 2005. To date Façade was a finalist in the 2004 Independent Games Festival, exhibited at ISEA 2004, and described in the recent book "Chris Crawford on Interactive Storytelling" as "without a doubt, the best actual working interactive storyworld yet created." Previously, Andrew was a lead designer and software engineer at PF.Magic, developing Virtual Babyz, Dogz, and Catz, which sold over 2 million units worldwide; currently he is a researcher-developer at Zoesis. Andrew has presented and exhibited work at the Game Developers Conference, SIGGRAPH, Digital Arts and Culture, DiGRA, TIDSE, AAAI symposia, Autonomous Agents, and Intelligent User Interfaces. Awards include a Silver Invision 2000 award for Best Overall Design for CDRom, for Babyz; Catz received a Design Distinction in the first annual I.D. Magazine Interactive Media Review, and along with Dogz and Babyz was part of the American Museum of Moving Image's Computer Space exhibit in New York. His projects have been written about in The New York Times, Time Magazine, MSNBC, Wired and AI Magazine. Andrew holds a B.S. in Computer Engineering from Carnegie Mellon University and a Masters degree in Computer Science from the University of Southern California. He blogs at grandtextauto.org, a widely read forum on believable characters and interactive narrative. The Façade project page is www.interactivestory.net.

Position Statement: Frank Vitz

The fidelity of computer games increases with the each new hardware generation, and player's expectations have kept pace. Today it is not enough just to have fast action and visual effects. Players want to be drawn into the game, to actually care about how things turn out — to believe that the characters they are interacting with are REAL on some fundamental level.

So what is it about a character that makes him/her/it believable? Is it the resolution of the model? Lifelike motion capture? Advanced shaders and lighting techniques? Sophisticated artificial intelligence algorithms? Certainly all of these cutting edge techniques are important to the successful suspension of disbelief. But the interaction among them and their proper balance is not always obvious. A photorealistic human model that moves awkwardly can appear to be a zombie, while a simple bouncy geometric shape with a friendly voice may seem very much alive.

I have had a lot of experience creating computer animation and characters and I believe that we can prioritize and balance graphic techniques to support perceived realism in our characters. I also think that there are guidelines that we can distill from the more successful game characters to date. I have examples, specific tips and techniques to support my ideas, drawn from my experience in advertising, the film industry and more recently the computer gaming industry.

I am also interested to hear what other panelists have to offer and look forward to a lively discussion that may yield some fresh insights.

Biographic Sketch: Frank Vitz

I have been involved with the creation of computer generated characters for most of my career in graphics; including the Sexy Robot created at Robert Abel and Associates, "Dozo" the first synthespian to be driven by motion capture, the Glass Dancers in the Luxor Trilogy ride film, Digital Stunt Doubles in "Judge Dredd," Mystique in the X-Men movies, and now the real time characters I am helping to develop for computer games at Electronic Arts.