Games People Play: Exploring DePaul's Top-Rated Computer Game Development Program

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The complexity of seemingly mundane tasks comes to life on screen in “Octodad: Dadliest Catch.” The player follows an octopus pretending to be human as he navigates life as a husband and father. The deliberately difficult controls infuse humor into everyday occurrences like pouring coffee, as flailing tentacles knock over everything in their path. “It’s a game about failure—or at least trying your best and not always resulting in a traditional manner of success,” explains Philip Tibitoski (CDM ’12), CEO of Young Horses Inc., the company that produced the game.

The original “Octodad” was created to enter the Independent Games Festival while Tibitoski and 18 of his peers were still students. After being named one of eight finalists at the festival’s student showcase in 2011, receiving honorable mention on Indiegames.com’s Best of 2010: Top 10 Indie Games list and winning Funniest Video Game of 2010 from SplitSider, the team decided to ramp up the original game with a sequel. “Octodad: Dadliest Catch” smashed Tibitoski’s expectations, selling more than 90,000 units in its first four months on the market. Now, with the Sony PlayStation 4 release in April 2014, the game stands as a strong testament to DePaul’s computer game development program and what its students can accomplish.

Improvement in rankings

In March 2014, the Princeton Review, in conjunction with PC Gamer magazine, named the top 25 schools to study game design in the United States and Canada. DePaul’s undergraduate program ranked 20th, a considerable leap from last year’s honorable mention. The graduate program came in at 12th, moving up three spots from last year’s 15th place.

“When other universities add game development, they are adding a class or two to the computer science department,” explains Edward Keenan, co-chair of the game development program committee and instructor of game development, software engineering and programming. “But where’s the art, design and storytelling? Where’s the computer graphics technology, networking, artificial intelligence and human-computer interaction? That’s what’s unique about DePaul. It has deep benches on each of these topics.”

Students entering the undergraduate program can specialize in game design, gameplay programming and systems programming. Within these concentrations, they take a wealth of courses to hone their craft while still mastering core concepts in each area. “We have a strong complement in art, design and programming,” says Brian Schrank, co-chair of the game development program committee and assistant professor of game development, theory and design. Students learn color theory and design from art professionals, game engines...
and scripting from programmers, and artful scripting and other practical elements from game designers. “What’s different between our program and a trade school is that we use the latest tools and technology the industry is using, but we are teaching the fundamental theories behind it because we know those tools will change,” adds Keenan.

DePaul’s program remains on the forefront of industry trends by bringing local experts to serve as adjunct professors and advisory board members, including professionals from High Voltage Software, Lunar Giant Studios, NetherRealm Studios, Raw Thrills Inc., Robomodo and Wargaming West. “If you have a really cool technique or special effect in a game, you aren’t going to publish it because that’s your technical edge,” says Keenan. “By the time it actually hits a textbook, it’s at least 10 years old. We’re offering courses that are emerging. By bringing in someone from industry, we can teach what’s happening now instead of waiting years for it to become mainstream.”

After working at Microsoft Corp., Cynthia Putnam, assistant professor of human computer interaction, brought the usability and playtesting techniques she learned there to DePaul. “Microsoft was the first to explore the separation between usability and playtesting,” she says. Usability research is concerned with behaviors, that is, if players can understand tasks and the consequences of actions, while playtesting captures opinions and attitudes about the game, including perceived “fun” and satisfaction with graphic quality and sound effects. At DePaul, two labs and one course are dedicated to exploring these concepts.

Putnam recently spoke at the Game Developers Conference about this course to help those interested in developing similar classes.

Courses mimic real-world working conditions by requiring students to collaborate on cross-disciplinary teams composed of programmers, designers, artists, sound technicians and writers. “Students work together from freshman to senior year to make projects that are really grounded,” says Schrank. “It’s like a real, codependent job you’ll have at a company [but] here at school.” No matter what his students focus on, Schrank always encourages them to see the bigger picture. “You could invent the future if you do something cool and show it at a conference,” he says. “I always build a real-world context for the classes I teach. They’re making things that could matter.”

**Faculty-student collaboration**

Keenan works with programming students to develop Azul, a 2-D and 3-D open-source game engine. “This is a think tank for video game development,” he says. “The project is focused on the technology, and the creative people will put the game on top of it.” For example, Keenan and his students re-create classic arcade games as part of a retro game project. After developing the source code and artwork from scratch, students can play Space Invaders. Yet, they can also take that code to generate a new game with a fresh design using the same functions. “If you’re a small start-up company, you can come to Azul and take technology you don’t know how to create and use it for free,” Keenan says.

Trapped in the post-apocalyptic world of “Tetrapulse,” enemy robobugs swarm, trying to steal your life force. What does it take to create these enemies of humanity?

1. **After brainstorming a character’s gameplay behaviors, game developers create a 3-D collection of vertices, edges and faces called a mesh to fit that character’s personality.**

2. **The mesh is fully fleshed out, including creation of a bone structure to bring the animation to life.**

3. **The character is flattened from 3-D to 2-D using a process called UV mapping (the “U” and “V” denote the axes of the 2-D texture).**

4. **The 2-D planes are painted and textured using Photoshop. Once this is completed, they are ready to be imported into the game engine.**
explain. “The idea is that people will come to DePaul, and it will increase the visibility of our program. Eventually, the first site you would go to if you want something would be DePaul.”

Inspired by the 2013 Global Game Jam at DePaul, David Laskey (CDM ’14), Jorge Murillo (CDM ’13), Ricky Roberson (CDM ’13), and students David Finseth and Peter Sheff developed “Tetrapulse,” a two- to four-player, single-screen game where players use their life force to battle invading robbos in a post-apocalyptic world. They fine-tuned “Tetrapulse” in Schrank’s two-quarter game capstone class, during which they also launched their own company, the Amiable, as part of their final project. “Tetrapulse came out of a desire to create a cooperative action game that calls back to older co-op games we played growing up,” explains Laskey, co-founder, president and programmer at the Amiable. After a successful Kickstarter campaign that raised more than $15,000, the Amiable has been showing the game at conferences like PAX East in Boston and C2E2 in Chicago. “We definitely feel more confident now,” adds Laskey.

From the dark world of “Tetrapulse” to the colorful, carnivalesque world of “Dumpy: Going Elephants,” students can explore various game concepts with their peers and their professors. Schrank and seven DePaul students and alumni developed “Dumpy: Going Elephants,” a virtual reality art game that allows the player to become Dumpy the elephant by using an Oculus Rift headset. “The player controls the trunk by rotating their head to destroy stuff,” explains Brian Gabor Jr. (CDM ’12), a computer science master’s student who acted as programmer and level designer on the project. Players can build velocity by tilting their head and swinging to the opposite side to accomplish the game’s main objective: to create chaos through demolition.

“Dumpy: Going Elephants” took second place in the 2013 IndieCade Oculus Rift Jam, and what Gabor likes best about this three-minute adventure is that “it’s short, fun and colorful.” Schrank realized the game resonated on a level neither he nor any of the other creators expected when he was contacted by the Arkansas Children’s Hospital. “They are interested in using Dumpy in a burn distraction study,” Schrank explains. Now, he’s working with the hospital to adapt the game to see if it can be effective at providing young burn victims with a mental escape from their condition.

Anuradha Rana, instructor in digital cinema, and Doris Rusch, assistant professor of game development, delve into Games for Change, a movement dedicated to using games to enact social change. “For the Records” is a transmedia examination of four mental health conditions—anorexia nervosa, attention deficit disorder, bipolar disorder and obsessive compulsive disorder. Rana and Rusch, along with a team of students and health-science professionals, created an online, interactive documentary composed of four short films and four game sequences. “The films give information and insight into what goes on in a person’s mind and tries to engage the audience emotionally, but as a viewer, you are still a passive observer,” Rana notes. “The games are trying to simulate the experience that an individual diagnosed with a mental health issue is living.”

The project’s website, fortherecords.org, showcases these web-based games, and starting in fall 2014, students and alumni can participate in person at Rusch’s Play for Change lab on DePaul’s Loop Campus. “Games and the embodied experience can help people understand more nuanced and complex experiences that are part of the human condition,” Rusch enthuses. “[Games for Change] is evolving … it’s such a rich, interesting and still-emerging field.”

Future of game development

With new trends emerging every day, there’s no way to predict what’s next for game development at DePaul. Yet, students and professors will continue to analyze basic mechanics and devise innovative approaches to gaming. “Games aren’t always played by pressing buttons in a traditional manner anymore,” Schrank explains. “They are played on different platforms, and that shows the openness and progressiveness with which we think about the medium.”

For instance, “Slapfest” explores the physicality of game play as participants face off to steal each other’s life points, watching their opponents for slight facial tics or shifts in body language that give away movement. While not a traditional computer game, “Slapfest” was selected by a jury to appear at the 2014 Game Developers Conference ALTCTRL exhibit, as well as shown at C2E2. “Slapfest” is just one game that’s challenging preconceived notions of what gaming could be, and the program fosters that creativity.

Schrank advances the idea of games as an art form as well as a platform to address societal issues through his 2014 book “Avant-garde Videogames.” “In the 1960s, people criticized film, saying that it can’t be high art,” he asserts. “Now people don’t question if you can tackle serious subjects in film. Games can tackle serious subjects like any other medium. We’re on the frontier of a medium that’s changing. Students can invent the future. There’s relevance to everything we do that’s connecting it to history and the future.”