

Game Room

A futuristic, metallic spaceship with a sleek, aerodynamic design is shown in flight against a dark blue sky. The ship is positioned in the lower-left quadrant of the frame, angled towards the right. In the background, the curved horizon of the Earth is visible, showing a mix of dark landmasses and bright, hazy clouds. The overall scene is set in a cinematic, high-tech environment.

Story by Megan Sofilka

Welcome to the amazing world of interactive computer and video games. There's nothing passive about the games. With vivid and detailed 3D graphics, awesome sound effects, compelling characters and non-stop action—the games engage your attention and senses.

Computer and video games are wildly popular, but the people who play them may surprise you. Today's gamers cut across age groups and gender. Whether you are into action, strategy, adventure, role playing, racing, sports or family and children's entertainment, there's a game for you.

Now, instead of waiting for the hottest action movie, gamers set up tents days in advance to buy the newest game systems.

Why do people play games? It's relaxing. It's an escape from the obligations of everyday life. It's just plain fun.

Always wanted to be a rock star? Forget the air guitar. Guitar Hero I and II allow players to rock out to their favorite songs on a guitar console. In the visually stunning God of War II game, the main character Kratos is stripped of his godhood and must fight the other gods to redeem his standing. The Nintendo Wii technology takes interactive games to a new level of participation rather than button-crunching. Players physically manipulate the control stick to direct the players in the video game. In the Tiger Woods PGA Tour 2007 game, the player swings the control stick like a golf club and that motion appears on screen.

Video game programming is a fast growing, competitive industry. Many want to do it, but few possess the talent needed to create a successful game.



Drs. Roger Webster and Gary Zoppetti of Millersville's computer science department.

While designers envision games and scenarios to include, they often lack the skills to actually develop the game. That's where programmers come in.

Millersville University is one of only a handful of higher education institutions offering a course track in video game programming – the force that brings gaming ideas to life.

Interactive media gaming represents a multi-billion-dollar industry. And Dr. Roger Webster, professor of computer science, is at the forefront of the continued development of this up-and-coming course of study. The program received

a \$150,000, two-year grant from the National Science Foundation entitled "A Computer Graphics and Game Development Track in Computer Science." Many colleges limit game programming to a course or two. This grant will allow the University to build on the existing courses in video game programming to develop a comprehensive approach.

"We are on the vanguard of a new wave of universities to offer this track," explains Dr. Gary Zoppetti, co-principal investigator of the grant and assistant professor of computer science at Millersville University.

 A dark, atmospheric image of a spaceship flying through a field of asteroids in space. The scene is lit with a bright, golden light source, creating a dramatic and futuristic feel.

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Programmers must develop entire worlds. It starts as a blank screen with no concept of gravity or any other laws of physics.

Video game programming courses are open to both undergraduate and graduate students. But it's not all fun and games.

Webster explains, "Millersville is one of a few to offer a track in this program, which requires courses not just in computer science, but also in art, mathematics, physics and psychology."

Programmers must develop entire worlds. It starts as a blank screen with no concept of gravity or any other laws of physics.

"In real life, if you bump into a wall, there is a reaction. It 'pushes' back," explains computer science major Jon Hollinger '07. "In video gaming, you need to program collision detection. If you don't, and something bumps into a wall, it will just go right through it. You need to let the computer know that if something makes contact with the wall,

it will bounce back or crash."

The way objects behave is just one thing that programmers need to think about when programming a game. Also important is being able to draw the world and its characters on the screen, dictate how and when sound is played, and determine inputs from the game user – what actions occur as a result of certain keystrokes. What happens when the player hits the space bar? What keystrokes cause a car to accelerate? Turn left? Stop?

Webster says, "I enjoy playing the games, but I like the challenge of programming more-so than playing. I'm very technical."

Zoppetti, who has been programming games since age 11, readily admits his passion for playing video games, which started with an Atari 2600 and a friend's Commodore 64. It has now grown into a



montage of the newest systems, including Xbox 360, PlayStation3 and Nintendo Wii.

The word "game" may undermine the importance and economic impact this entertainment sector has on today's culture. Sixty percent of Americans older than the age of six – about 145 million people – are playing video games. The economic impact is too compelling to be discounted. For example, in the 2003-04 fiscal year, for the first time, annual gross sales of 3D games exceeded movie box office receipts. According to The NPD Group, U.S. retail computer and video game software sales, including portable and console hardware, reached almost \$13.5 billion in 2006 – an 18 percent increase over the previous year. Computer and video software sales alone accounted for \$7.4 billion in 2006, triple what it was a decade ago.

Clearly, the future of video gaming is bright. In addition to games, video programmers are able to program training and education modules.

Zoppetti and his students are collaborating on a project that will combat losses on the battlefield from head trauma. Scheduled for completion by December 2008, Millersville University and Verefi Technologies of Elizabethtown are developing training software thanks to a \$692,000 small business technology transfer grant.

The software creates a simulator that

CLASS PROJECTS

For more information and to view demonstrations of student projects, visit <http://cs.millersville.edu/~webster/gametechnologytrack/demos.html>



SpudFest!!



Mario Game



MU Doom Forever
(for 5 players)

will be used to train non-neurosurgical medical personnel on how to treat soldiers who have sustained head trauma. This training will increase the number of medical personnel who can stabilize and evacuate injured soldiers for further treatment.

Educational material publishers look to video game programmers to come up with concepts for games to help children learn to read, write and solve math problems. Simulation “games” provide virtual training for everything from flight training, military maneuvers and preparation for crisis response to possible disasters.

Hollinger started out by taking the introductory course at Millersville. Following his success in the subject, Webster asked him to help develop toolkits as an independent study course. Along with several other independent study students, Hollinger helped to develop two different platforms for the graphics to be implemented in the games the students developed. In essence, the independent students programmed an educational module to train other students in programming.

“It’s a tool. One example is me creating a model that I then save on the hard

drive.” Hollinger explains, “Students can then program, or ‘call’ for things to happen with the model in their program. These are pre-made features that video gaming students can use and plug into their design idea.”

“Programming video games is very, very hard. It’s too much to teach in one semester,” Hollinger explains.

Given the complicated nature of programming, the toolkits help the video gaming students to get a game written and developed, without having to worry about designing the entire framework.

Although Millersville does not currently offer a degree in game programming (the course is an elective), it is on the right track. Through the grant, the University will be able to gain recognition in the higher education field and perhaps grow to a point where game programming will be offered as a major field of study.

“Dr. Webster is very passionate about this. He is very vocal about the field, and makes sure people know what it’s all about,” Hollinger says.

Once word gets out, lines for class registration may rival the lines for the newest game console.



GAMING FACTS

- 33** – Average age of a game player
- 40** – Average age of a game purchaser
- 69%** are heads of households
- 80%** of gamer parents play video games with their children
- 38%** of gamers are women
- 34%** of heads of households play games on their PDA or cell phone, an increase of 14% since 2002
- 3x** – the amount of time that gamers spent on exercise, sports, community activities, reading and creative endeavors compared to the general population

Source: Entertainment Software Association

Game Faces

Shauna Frischkorn, associate professor of art/photography at Millersville, was drawn to the phenomenon of the gaming experience and “what the person looks like at the moment when they’re playing,” she says.



“From the beginning, I knew I just wanted head and shoulder shots without their hands.”

In her studio, she

provided the game system and a couch, with a black backdrop. After the first flash from the camera, the subject’s gaze would be fixed on the game, oblivious to Frischkorn’s dozens of shots.



And so, “Game Boys,” a series of portraits capturing young men and their “game faces,” came to life. The expressions of the young men, were fixed and unchanging, even after hours of play and regardless of

the game genre or their success or failure. But the boys were “not passive, they were completely involved in what was going on,” she recalls.

Frischkorn’s work has appeared in *Time* magazine, *Mother Jones* magazine, and is on display at the University of Southern California, Philadelphia Art Alliance and Peter Hay Halpert Fine Art in New York.

