

Joel Gonzales sometimes describes the Student Video Game Alliance by stating what it's *not*. • "It's *not* a support group," the grad student quickly points out, in case anyone mistakenly assumes it was created for students addicted to electronic entertainment. • It's *not* an underground organization that encourages UL Lafayette students to play "Grand Theft Auto" instead of going to class. • Instead, the SVGA is composed of a new breed of gamer. No longer content to master the latest releases, its members want to devise their own games, a pursuit as demanding as making a movie. • "Some people think we sit around playing video games all day, but we don't," Gonzales explained. "We're too busy making them."

GAME BOYS *AND GIRLS

||| PHOTOGRAPHY BY DOUG DUGAS |||



THE UL LAFAYETTE CHAPTER OF THE STUDENT VIDEO GAME ALLIANCE IS REFINING A VIDEO GAME IT CREATED LAST YEAR FOR THE INDEPENDENT GAMES FESTIVAL. SHOWN FROM LEFT; JOSHUA BULLER, SVGA MEMBER; JASON DECOU, PAST SGVA VICE PRESIDENT OF EDUCATIONAL ADVANCEMENT; DR. MAGDY BAYOUMI, HEAD OF THE COMPUTER SCIENCE DEPARTMENT; AND JOEL GONZALES, SVGA PRESIDENT.



FACULTY IN THE COMPUTER SCIENCE DEPARTMENT ARE WORKING WITH STUDENT VIDEO GAME ALLIANCE MEMBERS TO DETERMINE THE CONTENT OF VIDEO GAME DEVELOPMENT COURSES. SHOWN FROM LEFT: FRANK DUCREST, INSTRUCTOR AND SYSTEM ADMINISTRATOR; NONA ETHEREDGE, INSTRUCTOR AND UNDERGRADUATE COORDINATOR; DR. JIM ETHEREDGE, ASSISTANT PROFESSOR; AND DR. MAGDY BAYOUMI, DEPARTMENT HEAD.

makes it a natural. What's even better, the students were pushing for this very difficult curriculum."

Bayoumi noted that the Computer Science Department has always been a leader; offering the new degree concentration is just another way it's staying ahead of the pack. And, he predicts that students who want to produce video games will "help us build better computers."



THERE'S A tremendous difference between *playing* a video game and *creating* one. It's like the difference between being able to drive a car and building one from scratch.

An electronic game is more complex than many folks might imagine, a paradoxical blend of algorithms and artistry.

On one hand, there's all the technical stuff. Voluminous amounts of code must be written to tell the computer what to do, for example. (That code is then translated by software into a computer "language" that consists of a series of zeroes and ones. Just 0s and 1s. Think about *that* the next time you play "Myst.")

Video games are interactive, which means a player is able to affect what happens on the screen. At the same time, some characters must act or respond "independently" to create a challenge that keeps the game interesting. That requires what computer scientists refer to as "artificial intelligence."

And what's the secret to video game graphics? Math. Lots and lots and lots of math.

On the other hand, a video game is like a movie. It has many of the same components, such as sophisticated visual effects, sound and a plot.

The artistic and creative skills needed to produce the "movie part" of a video game are far different than the mathematical and computer science skills needed to



DR. MAGDY BAYOUMI, HEAD OF UL Lafayette's Computer Science Department, has a reputation for listening to students.

So Jason Decou, a senior majoring in computer science at the time, felt comfortable meeting with him last year on behalf of the Student Video Game Alliance.

Could the Computer Science Department offer courses in video game design? Decou asked.

The request was a "happy coincidence," Bayoumi recalled later, because he and a few faculty members had already been kicking around the idea.

Bayoumi ticked off some of the reasons: "This is where technology is going and this is where industry is going. This is what the new generation is skilled in. And if we don't, we could lose good students."

He explained that video games are leading the evolution of computers. "The

new generations of computer architecture and systems are emulating video games. What drives a video game is really the graphics, the interaction between the person and the machine, and the capabilities of the computer," he continued.

The Computer Science Department recently added a concentration for a bachelor's degree in computer science: video game design and development.

Dr. Steve Landry, UL Lafayette's vice president for Academic Affairs, said it took "less than sixty seconds for me to grasp the wisdom of Dr. Bayoumi's proposal for the new concentration.

"After all, computer simulation, advanced computer graphics and computer-human interface development are each large and rigorous subfields of computer science. Graduates with these specialties are in demand by the likes of Boeing, NASA, General Motors and Microsoft. So, the fact that designers of today's advanced video games require all of the basics of computer science plus expertise in *all* of these specialties

handle the technical duties.

Studies suggest that the left hemisphere of the brain is responsible for a person's ability to perform math and exercise logic. The right hemisphere seems to govern emotions.

"We expect students in video game design and development to have a complete brain," Bayoumi quipped. "Half brains won't do it."



FOR OLD-TIMERS WHO REMEMBER playing primitive electronic games like "Pong" in the early 1970s, technology has advanced faster than Pac Man being chased by a ghost. In a little more than three decades, the games have become ubiquitous. They can be played on computers, home consoles, handheld toys, the Internet, PDAs and cell phones.

And the Electronic Software Association estimates that 50 percent of all Americans are players. As a result, the video game industry is gigantic.

"Games are expected to surpass film box-office revenues in the next couple of years, making it the fastest growing segment of the entertainment market, and an excellent field for career advancement," the International Game Developers Association states on its web site.

Like many young adults, UL Lafayette graduate student Joel Gonzales grew up playing video games. Ready for something more intellectually challenging, he established UL Lafayette's Student Video Game Alliance in February 2003.

"I didn't know if anyone else would do it if I didn't. So I just jumped in," he said.

Gonzales got the attention of several other students who share his interest in the computer science side of creating video games. Most have taught themselves by reading books and searching for information on the Internet.

"But you need writers, you need artists, you need designers," said Chris Best, SVGA's vice president of Product Development. "You need people to just sit down

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THE INTERNATIONAL GAME DEVELOPERS ASSOCIATION

and think about things, essentially."

So, from the start, the group has been on the lookout for anyone with artistic skills who wants to lend a hand. It hasn't had a great deal of success.

Students in UL Lafayette's College of

the Arts who are learning about computer animation seem like promising candidates, but few have volunteered.

"If they're art students, they're even busier than we are," Best said.

Josh Buller was an active SVGA member last year, when he was a sophomore. "I've found that while I may be majoring in computer science, I've had to put that part of me aside and use my artistic skills, because there's no one else," he said during an interview with *La Louisiane* in the spring.

This year, Elaine Kibodeaux, a senior majoring in broadcasting, has been helping the SVGA with graphics for its game. She is not the first female SVGA member; there have been one or two others. Kibodeaux is, however, the first to actively contribute to the alliance's game.



THE SVGA TACKLED A giant project last year: it created an entry for the Independent Game Festival Student showcase entitled, "The Ultimate IGF Submission."

"Have you ever wanted to be a game developer but just don't have the time? Then try the Ultimate IGF Submission! In it, you'll need to brave a dungeon to stop an evil game development tool



THE CENTER FOR ADVANCED COMPUTER STUDIES' HIGH PERFORMANCE COMPUTER CLUSTER. ITS NICKNAME IS "BIG RED."

from being unleashed upon the world,” states a description on the IGF web site.

It didn't win.

“It was our first try, so we're not broken up about it,” said Gonzales, philosophically.

There were 57 entries, which were judged in four categories: visual art, audio, game design and overall design. There are two scores for each category – for innovation and execution.

Gonzales said most entries were submitted from schools that make the creation of a video game a class project. “We were doing it on our own, with our own equipment or stuff we could borrow,” he said.

It took the SVGA five months of intense work. Students at some other universities spent up to two years preparing their entries.

Now the alliance is refining the original version of its first game, which it plans to submit in a future IGF contest. But members are taking their time, so they can simultaneously develop free tools other students can use to make their own games.

ALMOST EVERY ASPECT OF COMPUTER SCIENCE IS USED AND “TAKEN TO THE NEXT LEVEL” TO CREATE ELECTRONIC GAMES.

“We're doing actual programming work, which is developing language that only the computer understands. We're writing software that talks to the computer directly and handles the low-end stuff,” explained Best.

“We do all the heavy lifting, so other students won't have to learn nearly as much. We're not going to be around forever and we want to leave something for the people who come after us.”



WHEN THE COMPUTER SCIENCE Department started to formulate a curriculum for a concentration in video game design and development, Bayoumi turned to Gordon Brooks, dean of the university's College of the Arts.

For several years, UL Lafayette has been the only university in Louisiana to offer a bachelor of fine arts with a concentration in computer animation.

One way Brooks could help was by allowing computer science majors specializing in video game design to take some computer animation courses without completing the usual visual arts prerequisites.

“In some regards, they're not artists in the true sense of the word, but they need to be very aware of how animation works – the techniques involved and the concepts that drive them,” Brooks said.

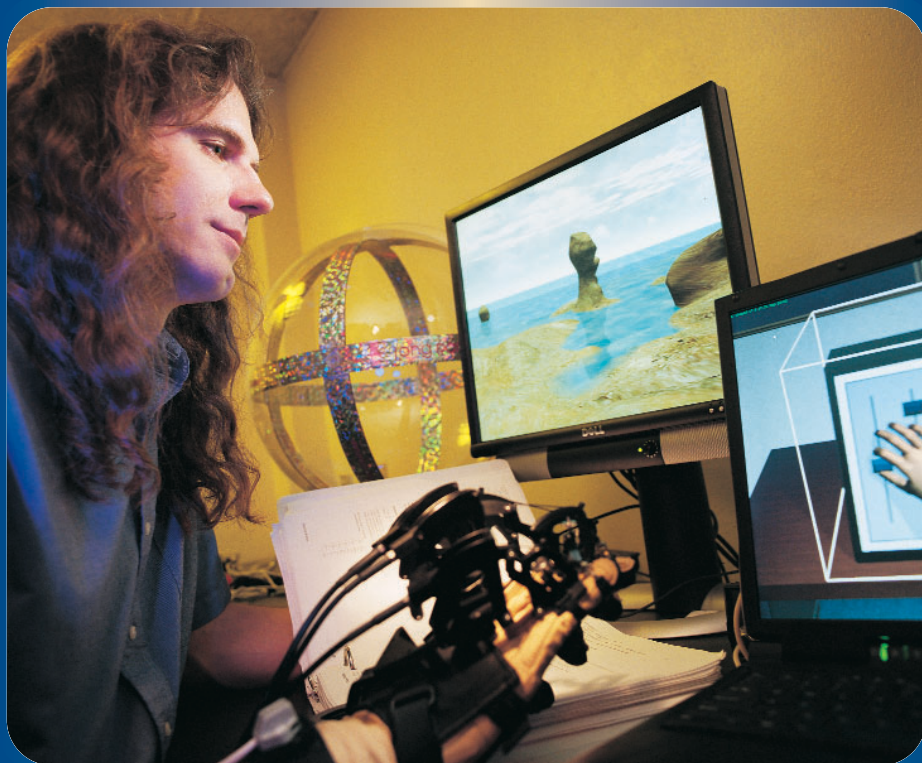
At the same time, art students need to be familiar with computer science, he said. They are urged to take introductory computer programming courses. “Many of our students want to become game designers as well. They just approach it differently,” Brooks said.

“We also encourage our students to take the single camera field production course in communications. Games at one time were just technology – hand/eye coordination – but they're deep into story now. They are very rich in content.”



DR. JIM ETHEREDGE WILL teach UL Lafayette's first video game development course in Spring 2005.

Right now, the associate professor of computer science is studying what he needs to pass on to his students.



IN THE VIRTUAL REALITY LAB, DR. CHRISTOPH BORST USES A DATA GLOVE TO INTERACT WITH A VIRTUAL ENVIRONMENT. HE IS ALSO WEARING A FORCE-FEEDBACK EXOSKELETON THAT PRODUCES A SENSE OF TOUCH WHEN VIRTUAL OBJECTS ARE CONTACTED.

Almost every aspect of computer science is used and “taken to the next level” to create electronic games, according to Etheredge. He has a background in artificial intelligence and is now learning about the design and development of video games.

“I’m actually taking our graphics course, sitting in on it,” Etheredge said, referring to a class taught by a colleague, Dr. Christoph Borst. “I’m having fun in the course, but I’ve got to admit that I don’t have to take the tests.”

Etheredge noted that “everything boils down to geometry.”

“Usually, objects are created in what’s called a wire mesh format, which is basically a bunch of triangles hooked together. But there’s math associated with that, too,” he said, explaining that algorithms are required to make an object appear to move naturally in a video game.

Borst has stayed busy since joining the staff and being put in charge of the Computer Science Department’s multimedia laboratory. “I redesigned the computer graphics program. It’s more intensive, more rigorous. I want students to have fun, but I want them to learn the basics,” he said.

Borst also established a virtual reality lab.

Dr. Mark Radle, an assistant professor of computer science at UL Lafayette, is exploring ways to teach how artificial intelligence is integrated into electronic entertainment. The simulation of the human thought process has been a part of computer science for many years, but he’s only now turned his attention to the introduction of human moods into video games. “If characters are very human-like, it makes them more fun and predictable,” he noted.

Radle said there’s a “huge commitment” by computer science faculty to prepare students well in video game development and design. “We’re going to continue to learn what they need to know.”



AS A MOTHER, NONA Etheredge empathizes with parents who worry about how much time their kids spend playing electronic games instead of reading books.

“I know a lot of them see their children sitting there with video games and joysticks and think, “Oh my gosh! What are they



DR. MARK RADLE, AN ASSISTANT PROFESSOR, IS APPLYING HIS KNOWLEDGE OF ARTIFICIAL INTELLIGENCE TO THE DEVELOPMENT OF ELECTRONIC GAMES.

going to do with the rest of their lives?”

But as an instructor and undergraduate coordinator of computer science at UL Lafayette, she also knows that video games aren’t, well, just fun and games, so to speak.

The skills used to play electronic games, such as hand and eye coordination, are useful in many fields. A recent study showed that surgeons who spent at least three hours a week playing video games were less likely to make mistakes on the operating table during laparoscopic surgery than those who didn’t.

And here’s an excerpt from a March 2004 NASA press release: “The skills astronauts need to dock the Space Shuttle with the International Space Station may be more familiar to school students than adults.

“The training simulator astronauts use to learn docking skills is found in many American homes; a video game console. . . the program used by astronauts is more sophisticated and complex than a game you might play at home, but the skills it requires are quite similar.”

Etheredge also knows that studying

electronic games won’t narrow students’ chances of landing good jobs after graduation. That’s because they can’t take video game courses until they’ve mastered the fundamentals.

“They still have to take all the underlying computer science courses. They have to learn operating system theory. They have to learn database theory. They have to learn language theory,” she explained.

“It’s still a very rigorous curriculum. We don’t want to train them just for video game development. We want them to be computer scientists first.”

Etheredge said she’s grateful for SVGA members’ help while she was honing the new concentration curriculum. “They have been really helpful in checking out other programs,” she said.

That didn’t surprise her. “We have a really good rapport with our students,” she said.

Bayoumi agreed.

“It was a very good working team, students and faculty,” he said, smiling proudly. “We developed this together.” ■