

# GEEK 411



The University of Advancing Technology Student Life Magazine

ISSUE 4 WINTER/SPRING 2009



## 34 BIKINI BOTTOM GEEK

MEET SPONGEBOB SQUAREPANTS WRITER DEREK IVERSEN

## 18 SPRUCE YOUR EWARDROBE

SMART CLOTHES ARE THE APEX OF EMBEDDED SYSTEMS

## 10 THE LITTLE BIG BANG

SECRETS OF THE UNIVERSE PART 2

WINTER/SPRING \$6.95

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| Game Programming            | Web and Social Media Technologies |



# T.O.C. ○ ○ ○

10 THE LITTLE BIG BANG  
Secrets of the Universe, Part 2

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MEET SPONGEBOB SQUAREPANTS  
WRITER DEREK IVERSEN

# EVENTS



## GDC 2009

[www.gdconf.com](http://www.gdconf.com)  
San Francisco, CA  
March 23 - 27, 2009

The Game Developers Conference defines the future of the multi-billion dollar game industry and shapes the next generation of entertainment. The conference provides an independent forum for expert developers from around the world to share ideas, build skills and learn about the latest technologies.



## FLY-IN G33K PROGRAM

[www.uat.edu/flyinggeek](http://www.uat.edu/flyinggeek)  
Tempe, AZ  
March 20, 2009  
June 12, 2009  
October 16, 2009  
November 7, 2009

The UAT Fly-in G33K Program gives you the opportunity to tour our unique technology-infused campus, sit in on classes, eat at the campus cafe, meet with Admissions and Financial Aid representatives, attend special events planned by UAT Residence Life and Student Life, and, best of all, be the overnight guest of a current UAT student.



## TECHNOLOGY FORUM 2012

'cause we're always 3 years ahead of the curve!

[www.uat.edu/techforum](http://www.uat.edu/techforum)  
Tempe, AZ  
November 4 - 6, 2009

UAT brings industry's leading technology experts on campus for three extraordinary days of breakthroughs, insights, trends and challenges.



## GEEK WEEK

Tempe, AZ  
October 13 - 17, 2009

Other universities might call it "Homecoming," but at UAT, it's a week for geeks, so we call it... well, Geek Week. Our Student Life and Residence Life teams put together seven days full of everything geek - from movie nights to Pi-Off and Dodgeball Tournaments - for fun and prizes.



## FULL ACCESS 2009

[www.uat.edu/fullaccess](http://www.uat.edu/fullaccess)  
Tempe, AZ  
March 21, 2009

Listen to the Industry's Experts talk about hacking and programming. Get information about UAT's degree programs from deans, faculty and students. Learn about financial aid, housing and enrollment and tour the campus!



## DEFCON

[www.defcon.org](http://www.defcon.org)  
Las Vegas, NV  
Date TBD

The Largest Underground Hacking event in the World! Several of DefCon's organizers are UAT faculty members.



## TECHNO SECURITY CONFERENCE

[www.technosecurity.com](http://www.technosecurity.com)  
Myrtle Beach, SC  
May 31 - June 3, 2009

The Techno Security Conference is an incredible networking and training opportunity. There are dozens of security-related sessions including the absolute best training and networking available anywhere.

NO LIMITS FOR

# ZERO BARRIER

BY WHAT MECHANISM CAN A GAME DESIGNER DISASSEMBLE A GAME DOWN TO ITS COMPONENT PARTS, UNDERSTAND HOW IT WAS PUT TOGETHER, AND INVENT NEW COMPOSITIONS FOR IT ALL BEFORE PUTTING HAND TO MOUSE OR FINGER TO KEYBOARD?

In Kenneth Svehla's case, it's imagination. As the team leader and head designer on the *Zero Barrier* student project, Svehla has been working for the past two years on a different kind of engine – the core game engine from the popular *Quake* series of games. What started out as a mod has turned into *Zero Barrier*, a game that bears no resemblance to its ancestor. *Zero Barrier* was built on a modified version of the *Quake* engine. From there, all similarities end. The Strogg-ridden, slippgated world of *Quake* is vastly different from the realistic 3D-space in *Zero*

*Barrier*, seen exclusively from a first-person player perspective.

"I would classify *Zero Barrier* as a total conversion rather than just a mod. A mod is when you use the same weapons, the same characters – basically a minor change to where you can still recognize the previous engine. In *Zero Barrier*, we have recreated everything from the ground up," Svehla said.



Team members (from left to right): Carl Boscarino - Game Programming, Jeffrey Conner - Game Art and Animation, Jason Hayes - Game Art and Animation, Levi German - Multimedia and Game Design, Farshad Roknipour - Game Art and Animation, Ken Svehla - Game Design, Jennifer Kempf, Daniel Paynter - Game Art and Animation, Raynor Bugayong - Game Art and Animation.

# from the ground up

The game includes in excess of 200 custom textures, more than 100 custom static objects, eight custom characters, and five custom weapons. The interface has been modified for style, speed, and motion. The effect is a game that does not feel anything like the original *Quake* game. Svehla and his team chose the engine at the start of the project because it had the high-end graphics capabilities they required, and because Svehla had been working with similar software engines for more than ten years, he was intimately familiar with its inner workings.

The team has been doing its development work on UAT's Game Dev machines for the past year, since the University added the *Quake 4* engine onto them in support of the student project.

"In the beginning, before *Quake 4* was put on the Game Dev machines, we actually brought our own machines down to the school every week, twice a week, to work on the project. Everybody on my team was required to go out and buy a copy of *Quake 4* to work with," Svehla said. "Eventually, the school realized we were serious about our project and they got behind us. They bought a bunch of copies of *Quake 4* and installed them on the Game Dev machines, so now we can work right here in the Commons."



**Team members (clockwise):** Jeffrey Conner - *Game Art and Animation*, Jennifer Kempf, Raynor Bugayong - *Game Art and Animation*, Levi German - *Multimedia and Game Design*, Ken Svehla - *Game Design*, Carl Boscarino - *Game Programming*, Jason Hayes - *Game Art and Animation*, Farshad Roknipoor - *Game Art and Animation*, Daniel Paynter - *Game Art and Animation*.

## no rest for the tireless

Svehla had the spark of true passion about his face when discussing the project, though physically he was worn down from lack of sleep. The whole *Zero Barrier* team was working around the clock, using every spare moment and those they could not spare, in preparation for the game's launch party. If not for the team's dedication and large quantities of caffeine, *Zero Barrier* would not be so far along.

The team is made up of a dozen students, including five modeling and texture artists, two animators, one script writer, two designers, and two programmers. Joseph Hegman, affectionately referred to as "Cliff" by Svehla and the rest of the team members, is the lead programmer, a 21 year-old prodigy with over ten years of C++ programming experience already behind him.

"There has yet to be a programming challenge thrown at Cliff that he hasn't been able to solve," Svehla said. Carl Boscerino, a first-year game programmer and one of the newest members of the team, was added as Cliff's wingman. "He's just grown by leaps and bounds," Svehla commented about Boscerino. When asked about the single most important skill that has contributed to the success of *Zero Barrier*, Svehla said communication. "Teamwork like this can't happen without good communication," he said.

## from auto engines to game engines

The *Zero Barrier* project was Kenneth Svehla's gestating brainchild for his first year at UAT until he brought it to life in a Special Topics class with Derric Clark at the opening of his sophomore year. Prior to coming to UAT for Game Design, Svehla was a gamer who made a living as a mechanic. He learned about UAT through his gaming community online and spent four years thinking about and wanting to pursue his lifelong dream before finally applying to the program.

"The school has been so supportive of us. [Librarian] Susan White has been excellent in publicizing us. The Marketing department made us custom *Zero Barrier* T-shirts. They've given us tables at events for recruiting new team members, which has been essential," Svehla said. He also expressed gratitude for the Game Dev professors, who have all been available for advice and information along the way.

"Running Man," the multi-player mode of *Zero Barrier*, was inspired by the 1980's movie of the same name. There are twelve players total, one runner and eleven players whose object is to stop the runner. The runner is spawned at a random location and given a map with a target destination. If the runner can make it to the destination alive, two points are scored. One point is scored by any player who can stop the runner. The players rotate, taking turns as the runner. *Zero Barrier* also has a single-player mode in development called *Street CTF* (Capture the Flag), which is a modified version of the original *Quake CTF* game.

Svehla and the team are excited about discussing the idea of starting a game studio together, building their game on a different, new engine, and talking to publishers. Time will tell. Meanwhile, the atmosphere is energized at UAT while student groups like *Zero Barrier* innovate the future.

### FAST FACTS

TEAM SIZE: 12

PROJECT LENGTH: 2+ YEARS

ENGINE: QUAKE 4

CUSTOM TEXTURES: 200

CUSTOM CHARACTERS: 8

CUSTOM STATIC OBJECTS: 100+

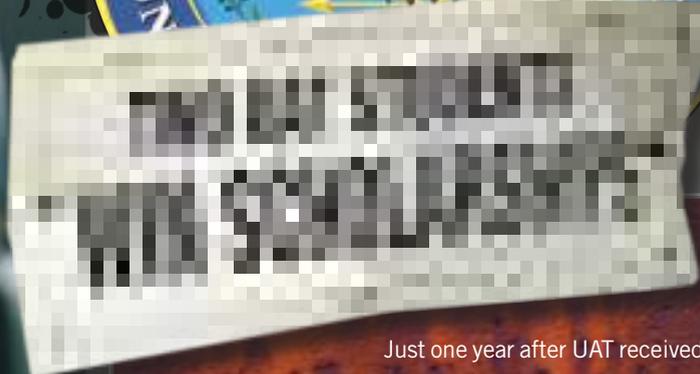
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LEARN MORE AT [WWW.UAT.EDU/ZEROBARRIER](http://WWW.UAT.EDU/ZEROBARRIER)



Read more  
UAT news at  
[www.uat.edu/news](http://www.uat.edu/news)



Just one year after UAT received the prestigious designation by the Department of Defense (DOD) as a Center of Academic Excellence, two of our network security students won the Information Assurance Scholarship Program (IASP). Larry Rivera and Trenton Tait were among just 50 nationwide recipients of the scholarships, which include full tuition for two semesters, a \$12,000 stipend for the year, and a job with the DOD after graduation.

"I'm very excited. Working for them is so prestigious," said Larry Rivera who had only one year left before earning his degree when he applied for the scholarship. The scholarship requires a minimum 3.75 grade point average and a lengthy application process involving a resume, work history, letters of recommendation, and detailed personal information.

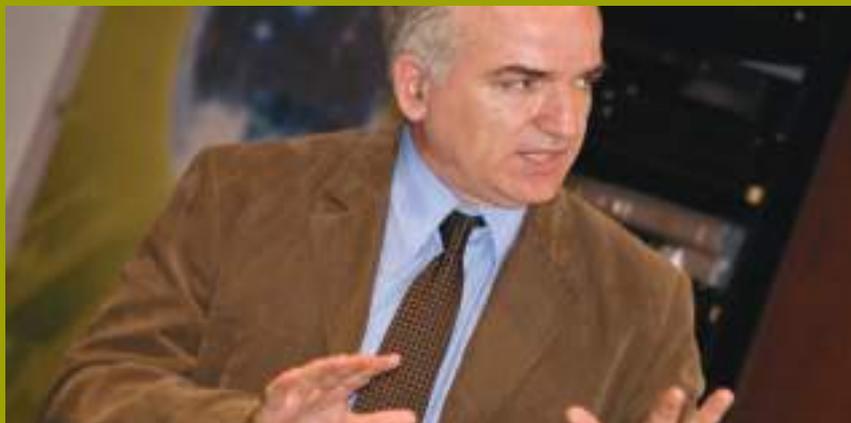
"Students applying to the program must be in the top of their class with the highest GPA," said Sue White, UAT's Associate Dean for the Center for Technology Studies. "In addition, the DOD is looking for well-rounded individuals who, in addition to exemplary academic performance, have also excelled in other areas like 4-H, sports and other extracurricular activities."

Trenton Tait became interested in network security in high school when he got bored and hacked the school's networks. Tait became aware of the scholarship while attending TechForum the previous year. He and Rivera worked with Sue White, who reviewed their application paperwork and assisted them in following all government guidelines. Both Tait and Rivera expressed gratitude for all of the help and support they received from fellow students, faculty, and staff.

"Obviously, these programs and scholarships further legitimize the curriculum at UAT and highlights the excellence of UAT's programs in information assurance," said Tait.

## & DR. ARBEN MERKOÇI

nanobiosensors & biorobotics



Will the worlds of artificial life and robotics collide to form amphibian-like machines that can see, touch, and smell? It emerged as a real possibility after Dr. Arben Merkoçi's visit to UAT where he talked about his work in the field of nanobiosensors and biorobotics. This would bring together the advanced robotics and artificial life programs at UAT, resulting potentially in robotic snakes, insects, and lizards crawling around campus, sniffing each other and looking at people.

Dr. Merkoçi came to UAT as a guest lecturer from Universitat Autònoma de Barcelona where he is a professor of research. He is also the leader of the Nanobioelectronics and Biosensors Group at Catalan Institute of Nanotechnology (CIN) in Barcelona, Spain.

Merkoci spoke at length with key UAT faculty members about possibilities for collaboration between the two schools. Some of the possibilities discussed included furthering the development of biosensor nanotechnology, a student exchange program, granting research stays to select UAT students at his CIN group labs in Spain ranging from four to twelve months, and the possibility of Merkoçi coming to UAT to teach two-week intensive courses in nanotechnology and nanoscience as they apply to biomedics, the environment, electronics, informatics, safety/security, toxicology and ethics.

What does this mean for A-Life and Robotics students? It means get to know each other, make friends, consider the implications. What creepy cool creatures would you dream up together? Where will technology like this lead? The future is limitless at UAT.

# WE'RE COMING TO A TOWN NEAR YOU TO GEEK YOU UP!

The UAT Road Show is on its way across the country to spread the word about this unique educational opportunity. If you're a seriously geeked student who wants to conquer the technology world, attendance is mandatory. It's the fastest way to get face-to-face with a UAT representative and get the information you need to make the most important decision of your life.

Check us out online at [www.uat.edu/nacactravel](http://www.uat.edu/nacactravel) and see if we will be in your area. If you'd like UAT to visit your school, ask your guidance counselor to contact a UAT high school Liaison Coordinator at 877-UAT-GEEK.

## TRAVEL SCHEDULE



Spring 2009

**Did you know...**  
 UAT has an optical motion capture and compositing studio.

### \*Spring 2009 NACAC Schedule

### Check Back for the Fall 2009 Schedule

<b>PITTSBURGH</b>	Thurs., Feb. 5 Fri., Feb. 6	9:00 am – 1:00 pm 6:00 pm – 9:00 pm 9:00 am – 12:00 pm	David L. Lawrence Convention Center Pittsburgh, PA
<b>ATLANTA</b>	Sun., Feb. 8	12:00 pm – 4:00 pm	Georgia International Convention Center College Park, GA
<b>LOUISVILLE</b>	Sat., Feb. 28	1:00 pm – 4:00 pm	Kentucky Int'l Convention Center Louisville, KY
<b>SPRINGFIELD</b>	Sun., Mar. 1 Mon., Mar. 2	12:00 pm – 4:00 pm 9:00 am – 12:00 pm	Eastern States Exposition (The Big E) West Springfield, MA
<b>ROCHESTER</b>	Fri., Mar. 13 Sat., Mar. 14	9:00 am – 12:00 pm 1:00 pm – 4:00 pm	Rochester Riverside Convention Center Rochester, NY
<b>SYRACUSE</b>	Sun., Mar. 15 Mon., Mar. 16	1:00 pm – 4:00 pm 9:00 am – 12:00 pm	Onondaga County Convention Center At OnCenter, Syracuse, NY
<b>BUFFALO</b>	Tues., Mar. 17 Wed., Mar. 18	9:00 am – 1:00 pm 6:00 pm – 8:30 pm 9:00 am – 12:00 pm	Buffalo Niagara Convention Center Buffalo, NY
<b>CHARLOTTE</b>	Sun., Mar. 22	12:00 pm – 4:00 pm	Charlotte Merchandise Mart Charlotte, NC
<b>MEMPHIS</b>	Wed., Mar. 25	1:00 pm – 11:30 am	Memphis Cook Convention Center Memphis, TN
<b>NEW YORK</b>	Sun., Mar. 29	12:00 pm – 4:00 pm	Jacob K. Javits Convention Center New York, NY
<b>HARTFORD</b>	Thurs., Apr. 2 Fri., Apr. 3	9:00 am – 11:30 pm 6:30 pm – 8:30 pm 9:00 am – 11:30 am	Connecticut Expo Center Hartford, CT
<b>SAN FRANCISCO</b>	Sat., Apr. 4	3:00 pm – 7:00 pm	Concourse Exhibition Center San Francisco, CA
<b>HOUSTON</b>	Sun., Apr. 5	1:00pm – 4:00pm	George R. Brown Convention Center Houston, TX
<b>AUSTIN</b>	Tues., Apr. 7	1:00 pm – 4:00 pm	Austin Convention Center Austin, TX

<b>BOSTON</b>	Tues., Apr. 7 Wed., Apr. 8	9:00 am – 12:00 pm 6:00 pm – 9:00 pm 9:00 am – 12:00 pm	Boston Convention & Exhibition Center Boston, MA
<b>SAN DIEGO</b>	Tues., Apr. 14	9:00 am – 12:00 pm 5:30 pm – 8:30 pm	San Diego Convention Center San Diego, CA
<b>WEST MICHIGAN</b>	Tues., Apr. 14	8:30 am – 11:30 am 6:00 pm – 8:00 pm	DeVos Place Grand Rapids, MI
<b>MONTGOMERY COUNTY</b>	Wed., Apr. 15 Thurs., Apr. 16	9:45 am – 12:45 pm 6:30 pm – 8:30 pm 9:45 am – 12:30 pm	Montgomery County Agricultural Center Gaithersburg, MD
<b>INLAND EMPIRE</b>	Thurs., Apr. 16	9:00 am – 12:00 pm 6:00 pm – 8:30 pm	Ontario Convention Center Ontario, CA
<b>METRO DETROIT</b>	Thurs., Apr. 16	9:00 am – 11:30 am 6:30 pm – 8:30 pm	Burton Manor Banquet and Conference Center
<b>ORANGE COUNTY</b>	Sun., Apr. 19	1:30 pm – 4:30 pm	Anaheim Convention Center Anaheim, CA
<b>GREATER LOS ANGELES</b>	Mon., Apr. 20 Tues., Apr. 21	1:00 pm – 4:00 pm 8:30 am – 11:30 am	Pasadena Conference Center Pasadena, CA
<b>VENTURA/TRI COUNTY</b>	Wed., Apr. 22	5:30 pm – 8:30 pm	Seaside Park Ventura, CA
<b>PROVIDENCE</b>	Sat., Apr. 25	1:00 pm – 4:00 pm	Rhode Island Convention Center Providence, RI
<b>CLEVELAND</b>	Sun., Apr. 26	1:00 pm – 4:00 pm	Wolstein Center Cleveland, OH
<b>NEW JERSEY</b>	Wed., Apr. 29 Thurs., Apr. 30	1:00 pm – 4:00 pm 8:30 am – 11:30 am	New Jersey Convention & Exposition Center Providence, RI
<b>NASHVILLE</b>	Sun., May 3	1:00 pm – 4:00 pm	Nashville Municipal Auditorium Nashville, TN

\* Note: These dates are tentative and subject to change. Please visit [www.uat.edu/nacactravel](http://www.uat.edu/nacactravel) for the latest schedule.

Amid all the hype and media attention surrounding the Large Hadron Collider (LHC) this year, the only collision that's taken place so far is that between science fiction and science fact. The impending experiments might find the God Particle (Higgs Boson), discover supersymmetric particles, and even show us evidence of extra dimensions, but the biggest question of the masses continues to be: Will it destroy the world?

Dave Bolman, Provost and University Dean at the University of Advancing Technology (UAT), said that the doomsday rumors are just that – rumors. "I think the potential benefits greatly outweigh any risk," Bolman said. We took a look at the three big benefits as well as the three big fears that are anticipated for the greatest atom smashing event in history. The European Organization for Nuclear Research (CERN) justifies the time and expense of this project by the spin-off benefits and technology transfers we'll look into, but their real motivation and passion seems to be altogether different. One is training young people, future innovators, true techno-geeks, and creating possibilities for them so they can go off and do something else with the knowledge that comes from these breakthroughs in nature. The other benefit is fundamental human curiosity. But even so, most of the world wants to know what's in it for them, and that's where the specific applications to future technology play an important role.

## THE THREE BIG BENEFITS

### 1 Energy

Michio Kaku, a respected theoretical physicist at the City College of New York and member of the Leonardo Da Vinci Society for the Study of Thinking, predicted that the insights gained from the LHC experiments could be applied to developing new energy sources in the future — such as controlled fusion power. Fusion power is generated by nuclear reactions where two light atomic nuclei fuse together to form a heavier nucleus, thereby releasing energy.

Those microscopic black holes people are so afraid of might even play a long-range role in the energy quest. "Some people think that maybe black holes in outer space may be a source of energy for future civilizations," Kaku said.

It's been a known fact in science for years that a rotating black hole can store a huge amount of energy in its rotation. The first law of thermodynamics (conservation of energy) states that energy lost from the black hole must be absorbed by the region. This energy can also be extracted, since the rotation is imposed on the space outside the hole.

Scientists are now on the brink of having the missing piece to this puzzle. They've known for a long time that black holes produce a huge amount of extractable energy. They just have never been able to actually make a black hole.

### 2 Telecom and Medicine

The challenge of collecting, storing, and sorting out all the data created by past experiments is what led to the creation of the World Wide Web at CERN in 1990. Now, the LHC stands to open up a whole new world of global distributed computing and more efficient mass data storage. Taking a closer look at subatomic matter could also bring breakthroughs in quantum computing and super-secure networks.

Particle accelerators have already been responsible for major advances in cancer treatment and medical imaging. Future hospitals may feature technology developed for the LHC, like the ultrasensitive photon detector built for the Large Hadron Collider beauty experiment (LHCb), an experiment set up to explore what happened after the Big Bang that allowed matter to survive and build the Universe we inhabit today. The detector finds extremely low-level light signals as well as signals other than light, such as biological, chemical, and electrical. This may play a role in critical medical imaging, biomedical, industrial, and research applications.

### 3 Time Travel

Historically, a better understanding of our Universe has contributed to huge technological leaps forward, like the steam engine and the industrial revolution. The unification of electricity and magnetism brought computers and lasers. Breaking open the atom started the controversial nuclear age. Many people speculate that the LHC experiments could create a super force, the manifestation of the super string theory, which suggests there are additional dimensions other than the observable four of spacetime. Scientists believe these other dimensions are detectable only when extraordinary amounts of energy are present. It is their hope that other dimensions will become observable when such concentrated amounts of energy collide.

Ever try visualizing a bunch of extra, unseen dimensions? It's next to impossible because we can only move in three spatial dimensions. One way of compensating for this limitation is to think of them as extra numbers in the equations that describe the way the world works. What scientists hope the LHC experiments will do is nail down that equation. That information would be the key for future generations to manipulate the fabric of spacetime.

# The Little



## THE THREE BIG FEARS

### 1 Black Holes

Professor Otto Rössler, a German chemist at the Eberhard Karls University of Tübingen, is one of the most vocal opponents of the LHC and was one of the scientists who filed a legal complaint against CERN that read, "CERN itself has admitted that mini black holes could be created when the particles collide, but they don't consider this a risk. My own calculations have shown that it is quite plausible that these little black holes survive and will grow exponentially and eat the planet from the inside. I have been calling for CERN to hold a safety conference to prove my conclusions wrong but they have not been willing."

Professor Rössler claims that, in the worst case scenario, the Earth could be sucked inside out within four years of a mini black hole forming.

Scientists at CERN are quick to rule this out as a possibility. They think that there is little theoretical chance of the collider producing mini black holes that would be capable of posing a danger to the Earth. Many of them gave the example of cosmic rays hitting the planet continually and throughout history that have far more energy than will be created with the LHC experiments and that have caused no such harm. In addition, large particle colliders have been used by scientists to smash atoms and pieces of atoms together for more than thirty years without incident.

### 2 Antimatter

The second big fear, that the LHC experiments will create enough antimatter to make an antimatter bomb that will explode the planet, comes largely from fiction. A novel, *Angels and Demons* by Dan Brown, is a detective story in which a secret society steals antimatter from CERN and creates an antimatter bomb. Once again, scientists at CERN have ruled it out as a possibility. They say that although an antimatter bomb is possible under the laws of physics, there is no way to contain it in order to create a bomb. Even if it could be contained, there would be no way to create enough of it to make a bomb. The amount of antimatter created from the particle collisions in the LHC will not be enough to light a lamp, according to CERN scientists.

### 3 Strangelets

A quark is a particle that has both an electric charge and a "strong" charge. They combine in groups of two or three to form composites (mesons and baryons), held together by the strong force. Protons and neutrons are composites – both are made up of three quarks.

Black holes and antimatter aren't LHC opponents' only worries; they're also concerned that when the collider creates a bunch of free-flying quarks, some of them might recombine in a dangerous way to form a new, stable, negatively charged 'strangelet' that could turn everything it touches into more strangelets.

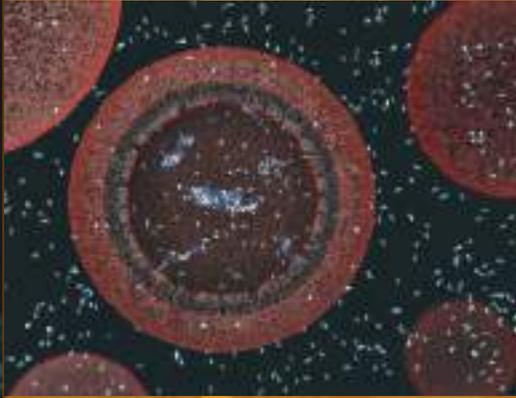
The same opponents also suggest that magnetic monopoles (magnets with only a north or a south pole, but not both) could be created in the collider that would go around eating up protons and therefore, the planet. Scientists at CERN insist that if magnetic monopoles exist, they would be too heavy to be created at the LHC. Physicists at CERN further point out that strangelets and magnetic monopoles have never been seen, either in previous collider experiments or in the cosmos.

Source: "Nightmares & Dreams" <http://www.msnbc.msn.com/id/25356219/>

# Big Bang.

did you know...

Physicist and renowned "popularizer of science" Dr. Michio Kaku was the 2008 commencement speaker at UAT.



## New Life Form?

It's not quite artificial life yet, but close. Jack Szostak, a molecular biologist at Harvard Medical School, is building protocells from fatty molecules that can trap nucleic acids and self-replicate. Combined with energy, the systems could evolve into life. Because the replication isn't autonomous, it can't be called artificial life yet.

Szostak plans to copy a limited set of simple genetic sequences in order to have them evolve on their own. The genes would venture down the same Darwinian evolutionary path that all life traveled, ending up – who knows where? The team just wants to get the cells to replicate completely on their own first, then they'll guess about what kind of life might evolve under those conditions.

Protocellular work like this is different from, and more radical than, synthetic biology or artificial life programming. While A-life models use current life forms as a template for their creations, protocell researchers are working on an altogether new life form that's never been seen and that may not have even existed before.

It's possible that these scientists are reproducing life as it first began on Earth. On that day, a nucleic acid might have bumped into a fatty molecule and started replicating. This is the random event that many scientists believe created life as we know it billions of years ago.

There is also the opposing view that protocell work is not a solid explanation for the origin of life on earth. There are those who believe that the very first life-like molecules would have to have been inorganic compounds, containers for early cells to develop.

The race to recreate the origin of the species is on and it's molecular biology against artificial life programming!

## Shred Nebula on Xbox 360's Live Arcade

A team of UAT game design and programming students led by James Goddard, CEO and founder of Crunchtime and associate professor of Game Development at UAT, created *Shred Nebula*, a game that has been accepted by Microsoft for inclusion on Xbox Live Arcade. The team is small, made up almost entirely of new talent, and operating out of a game studio that is Goddard's converted garage in Chandler, AZ. The outside is inconspicuous—it looks like any free-standing garage that might contain a car or some stored bookcases and bicycles. But inside, it's a low-lit, sleek, red and black game studio complete with a pool table, lounge chairs, a huge HD game console, and work stations for the team.

When Goddard pitched *Shred Nebula* to Microsoft, one of the crucial steps in landing acceptance was creating two official documents: a pitch paper and a manuscript required by Microsoft known as "60 seconds of gameplay."

Typically, in the game industry (and any other industry for that matter), such official documents would be protected behind non-disclosure agreements (NDA) and kept hidden as trade secrets. Goddard, given the vested interest he has in up-and-coming game developers, decided to change all that. He made these pitch documents available to the public. As the founder and CEO of the company, Goddard says he can do what he pleases with the IP, company documents, and the like.

"Our game is done; there is no reason to keep these secret at the expense of helping our future developers and sharing some design know-how within our industry," Goddard said.

Goddard has completed lots of documentation for games in his 17-year career, the kind that can make or break a game's chances to get published. "I personally have created many detailed design documents and high-end pitches for the games I have worked on over the last 17 years as a lead designer, director, and character gameplay programmer – all of which are stuck under an NDA blanket and therefore, hidden away from those who

could greatly benefit from the experience," he said. "It is my pleasure to finally release this kind of documentation from our game *Shred Nebula* Xbox Live Arcade."

*Shred Nebula* is a \$10 downloadable game with an "Adventure Mode" containing 22 stages and six "Solar System Class" levels that allow extended game play as well as optional objectives and sub-objectives. A "Score Attack" option, with 18 levels and 100 attack waves, is also available. In addition, a "Death Match" play feature is available with 11 maps from which combatants can choose.

Crunchtime managed to squeeze in dozens of backgrounds, characters and sound while still coming in under Xbox Live's 50MB game limit. They were later approved to add additional audio, bumping the total to approximately 80MB. It's a surprisingly small file size for a game with so many features.

"The game just has this organic play to it; it is very precise and chiseled. Anyone who is familiar with our line of work will be like 'how did they put that in there?'" Goddard said.

Goddard attributes the success of *Shred Nebula* to his team's talent and attitude.

"Talent is important – you have to have talent – but attitude is what will make you great in this business," said Goddard. "Attitude is crucial in a team environment."

Goddard found these attributes in his students at UAT. The University's dedication to a curriculum focused on technology, innovation and teamwork has consistently produced highly competent students who function effectively in a wide variety of technology-related fields.

As the release of *Shred Nebula* approaches, the focus in the Crunchtime studio is shifting to future projects. An expansion pack is high on the list but the ideal for 2009 is laying groundwork on an all-new title. They're also going to do quite a lot of pool-playing and chair-lounging while they test and play their games.

For more information visit [www.uat.edu/shrednebula](http://www.uat.edu/shrednebula)

"The game just has this organic play to it; it is very precise and chiseled. Anyone who is familiar with our line of work will be like 'how did they put that in there?'"



"Our game is done; there is no reason to keep these secret at the expense of helping our future developers and sharing some design know-how within our industry."

# Shred Nebula on Xbox 360's Live Arcade



James Goddard  
UAT Faculty Chair and  
CEO/Owner of Crunchtime Games



Crunchtime Games studio



Crunchtime team members

# PROFILE

Ryan Clarke

If you can break into a secure embedded system via any technological means necessary, skim through ancient, dead languages with the ease of reading the Sunday comics or assemble a robot with one hand tied behind your back, then you just might be able to wade through a conversation with Robotics and Embedded Systems Professor Ryan Clarke. Knowing a little something about martial arts, near-space ballooning and juggling wouldn't hurt the banter, either.

## Clarke would definitely be the guy you'd want on your "brain bowl" team.

UAT's robotics guru personifies the avid technophile, tearing apart electronics since he was a kid just to see how they worked, hacking into their systems and changing their make-up. Clarke also has that uncanny blessing of loving what he does for a living, proclaiming, "My work is my interest. Robots and electronics are my hobby as well as my business."

Clarke would definitely be the guy you'd want on your "brain bowl" team, graduating with a degree in computational mathematics and completing senior coursework in computer systems engineering, electrical systems engineering and physics at Arizona State University.

He brings a healthy dose of practical robotics and embedded systems experience to the table as well, having worked in the industry as an application engineer and educator for Parallax, the world's largest educational robotics supplier. CNET took notice of his DEFCON challenge last year, and the feature was picked up by the Associated Press. His personal robotic creations have been featured at Maker Faire, and images of his handiwork appear in *Nuts and Volts*, *Servo* and *Circuit Cellar* magazines.

Clarke is currently teaching a variety of programming courses and can be found challenging students to allow him to demonstrate how robotics and embedded systems can apply to any major at UAT.

His personal robotic creations have been featured at Maker Faire, and images of his handiwork appear in *Nuts and Volts*, *Servo* and *Circuit Cellar* magazines.





# COMMUNITY SERVICE AT UAT HAS SUPER MARIO ★ STYLE ★

To see a list of community service projects  
visit [www.uat.edu/campuslife](http://www.uat.edu/campuslife)



**“My favorite character in Super Mario Brothers is Luigi because he’s always in Mario’s shadow. That’s how I felt growing up with my brother.”**



The final team-building event for Connect Week at UAT looked like a cross between a construction site and the stock room of a retail food store. There were cans and boxes lining the terrace out in front of UAT, makeshift scaffolds, and lots and lots of people. It was CANDemonium, the brain child of Student & Community Affairs Coordinator Liz Aguilar. It involved all 270 incoming UAT freshmen as well as student team leaders, faculty, and staff. The goal was for the students to work together using canned goods to build the first level of *Super Mario Brothers* in eight bit.

Giovanni Gonzales, an incoming Game Design freshman, was part of Team Taqwa—one of fifteen teams all named after key terms in the *Dune* series of science fiction novels. “It means the price of freedom,” said Gonzales with a smile. He stood armed with packing tape and scissors. Beside him was Vincent Burrs, a second year Game Design student. Burrs was crouched on the concrete, taping cans of creamed corn together in a row, labels facing forward. He referenced a map or blueprint—an instruction sheet that was color coded for how to amass the cans to render the picture of a Koopa Troopa.

Gonzales and Burrs had the cans arranged in semblance on the ground, waiting to be tightly wrapped in packing tape to hold them together. The next step was to attach the rows of taped cans to the scaffold, which would present their sculpture in line with the rest of the set to the passing cars on Baseline Road.

**“Community service is important to UAT. We’re always looking for new ways to reach out and help the community when we plan events like this.”**

Giovanni Gonzales grew up playing *Super Mario Brothers*. “My favorite character in *Super Mario Brothers* is Luigi because he’s always in Mario’s shadow. That’s how I felt growing up with my brother,” he said, solemnly dispensing and cutting more tape for Burrs. Other students on the team were reinforcing the scaffold for their Koopa Troopa with cardboard to widen it—it turned out too narrow when they began mounting the bottom rows. This was just one of the many

small complications along the way that the students had to work together and solve.

CANDemonium was not just a team-building effort to bring new students together in a cooperative spirit—it was also an act of community service. All of the canned goods and dry boxed goods used to build the sculptures were subsequently donated to St. Mary’s Food Bank to help feed the homeless and underprivileged.

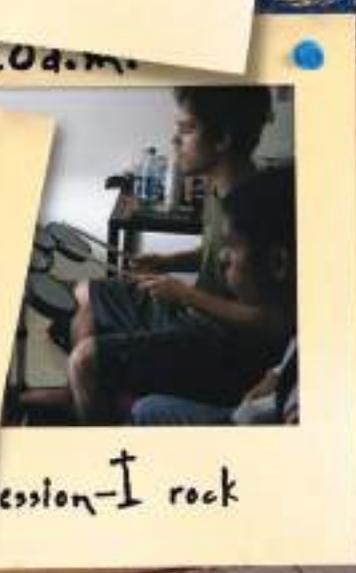
“Community service is important to UAT. We’re always looking for new ways to reach out and help the community when we plan events like this,” said Aguilar.

The students were excited to help the community as well. While standing back and regarding with pride the completed can castle, a student from Team Hajra put it aptly when he said: “Helping people should always be this fun.”

For more, visit [www.uat.edu/campuslife](http://www.uat.edu/campuslife)



Follow current Founder's Hall student Galen Busby, as



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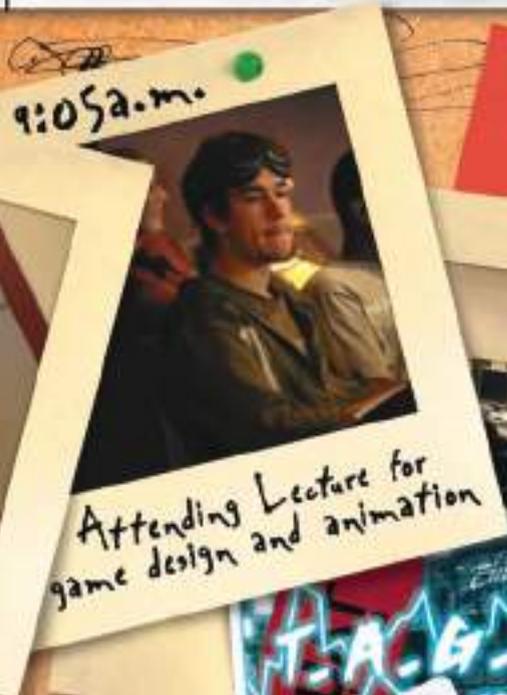


To learn more about what goes on during a day in the

he goes to class and enjoys life on the UAT campus.



Remind next door dorm buddy about our class



Attending Lecture for game design and animation



# DAY IN THE LIFE OF A DORM STUDENT



Time to re-fuel again



Time to catch up on some z's



Figure Drawing class

life of UAT students, log onto [www.uatdayinthelife.com](http://www.uatdayinthelife.com)

## Smart Clothes are Here

They may even be the future of first date attire. Imagine fashions with integral anti-perspirant capabilities or lovely scent-releasing features lining the racks of your closet. Imagine your famous high-tech mojo finally catching up with your sense of style. Take a deep breath and relax when your shirt warns you that your heart rate is spiking. In place of a shirt with a static graphic, it could be a light emitting diode (LED) monitor to display text and images, continuously changing your shirt without ever taking it off. If you're musically inclined, you could even play your musical jacket featuring keypads woven right into the sleeves.

Smart Clothes, I-Wear, E-Textiles, Computer Clothing—it goes by many names, but it's here. The technology is being used for a wide assortment of functions from repelling insects, to monitoring vital signs, to detecting cancerous cells in the body.

Rebecca Whitehead, Dean of Academic Affairs at UAT, and Dave Bolman, Provost and University Dean, shared their opinions with Geek 411 about the most interesting current applications of this technology. Two of them are a smart shirt and dress, both made by a London-based company called CuteCircuit.

## All We Need Is Love

The Hug Shirt is a shirt that . . . wait for it . . . (drum roll/ dramatic lighting) gives you a hug! Imagine your sweetheart is across the country from you and needs a hug. With both parties wearing Hug Shirts, you can send a hug across time and space via Bluetooth. The shirt contains "hugging output actuators" embedded inside soft pads placed strategically about the shirt in the areas that will best simulate the feeling of being hugged.

The second product is the mystique dress, which changes length and color throughout the day. The garment goes from dress to gown in five stages over the course of a day. They call the technology electromechanical embroidery. The fabric is embroidered with mother of pearl, metallic sequins, and small magnets. When the dress is folded, the magnets hold the metallic sequins. When the timer reaches the specific hour, these magnets release the sequins in rows and the fabric unfolds. The color change occurs because the dress is a fabric cylinder folded inside-out with a gray side and a red side. The dress is gray when short and red as it lengthens.

**"You could even play your musical jacket featuring keypads woven right into the sleeves."**

## Invisible Cloak?

Smartex, a technology company in Italy, is currently touting a product called WEALTHY, a wearable healthcare system that can track the respiration, posture, temperature, and movement of a person.

Also underway at Smartex is the development of a suit that reflects light from its surroundings, taking on the appearance of the environment and rendering the wearer nearly invisible. Much more precise and effective than camouflage, it is being tested for uses that will replace traditional field uniforms for soldiers. Anyone reminded of a certain cape worn by Harry Potter? How about getting your hands on your very own invisibility cloak? Might come in handy should that first date turn sour. Just excuse yourself to the restroom, don your cloak, and walk out unseen.

As for the future of this technology, Deans Whitehead and Bolman had some interesting opinions. One possibility is a suit of clothing for paralyzed or disabled people who are unable to walk or perform fine motor functions that would provide an autonomous source of strength and function. The suit would be inconspicuous, worn under normal clothing, and would allow the person to move around independently. A variation on this theme was first unveiled in Japan in 2002: the HAL-5 robotic suit. The HAL-5 has been mass-produced by a company called Cyberdyne, but it's bulky and costs between \$40,000 and \$60,000.

## Exoskeleton Army

Currently being developed right here in the U.S. by Raytheon Company in Salt Lake City, UT, is the "robotic suit for the soldier of tomorrow," a futuristic exoskeleton wearable robot that turns a regular man into an iron man.

The exoskeleton suit is a combination of sensors, actuators and controllers that can give you enough added strength and agility to easily carry a man on your back or lift hundreds of pounds over and over again without tiring. Although the suit is being developed for the U.S. Army, its potential is that it's agile enough to let its wearer run, kick and climb with ease.

The same technology could be applied to the brainchild of Deans Whitehead and Bolman, the smart clothes suit that enables a person with limited mobility to regain his or her physical independence.

"Just work the size down to something that fits undetectably under the clothes and you've got a very valuable product," said Dean Whitehead about the suit.

Future innovators will have an opportunity to be the engineers of the next generation of Smart Clothes by attending UAT and enrolling in their new Human-Computer Interface program starting in the Fall of 2009.

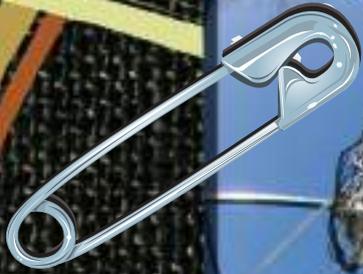
**The Hug Shirt is a shirt that . . . wait for it . . . (drum roll/ dramatic lighting) gives you a hug!**

See more smart clothes innovations and find out what Deans Bolman and Whitehead have to say about them. Visit [www.uat.edu/eWardrobe](http://www.uat.edu/eWardrobe)

**did you know...**

**In just 3 hours UAT students created a fully functional quad crawler designed to take instructions and determine a path from navigation sensors.**

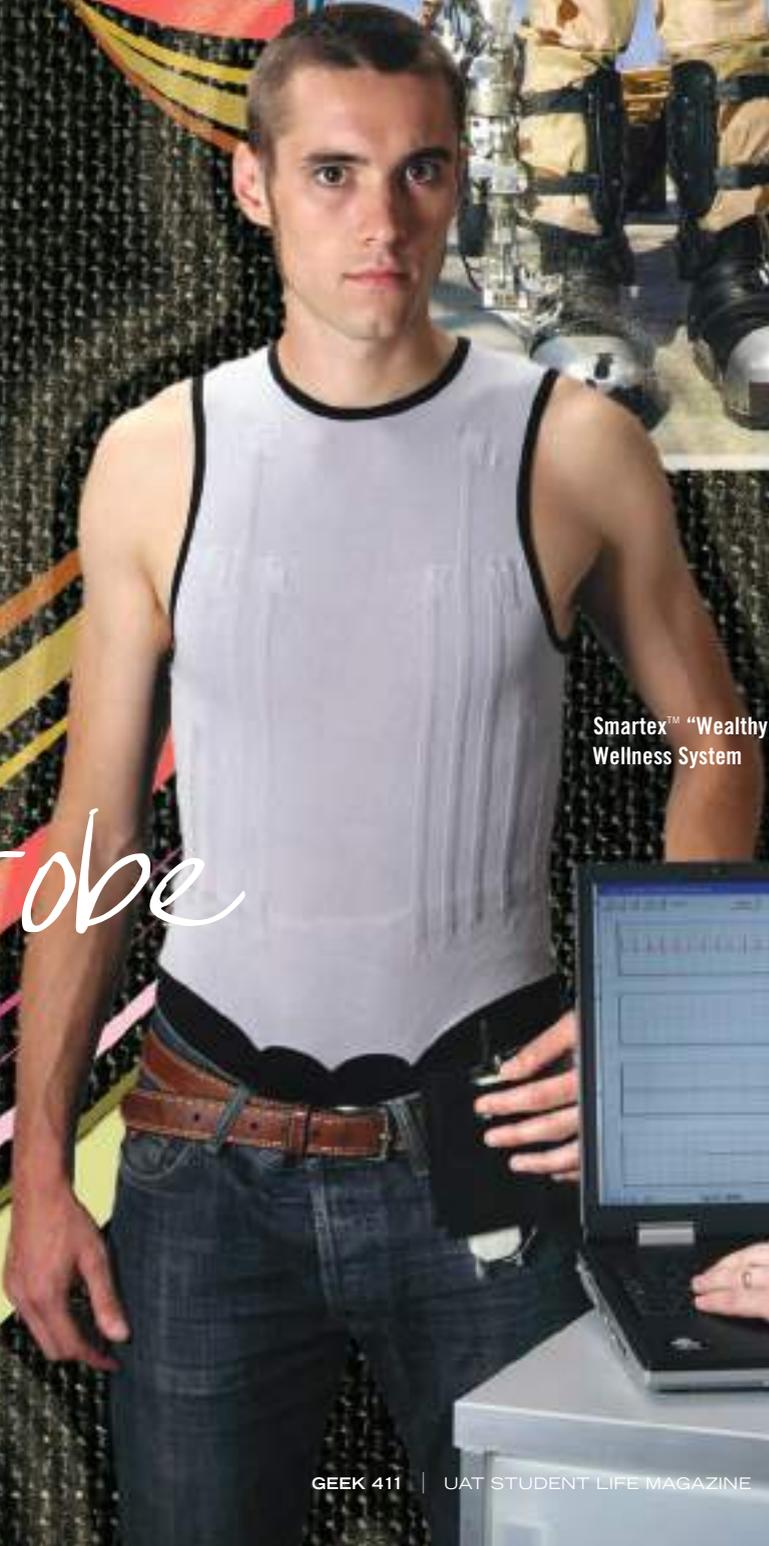
Raytheon™ Exoskeleton



New Hug Shirt

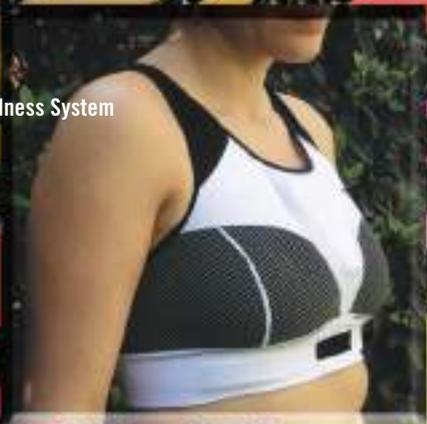


Smartex™ "Wealthy" Wearable Wellness System



# your e-wardrobe

Smartex™ Wearable Wellness System



When's the last time you read an opinionated blog? Oh, today? Five minutes ago, maybe? That's because blogs are the digital forums for open thinking – it's why they exist. Usually, someone somewhere is going to disagree with the blogger's opinion. That's fine. The problem arises when the comments posted and the dialogue generated turns foul. Like when you post a comment attempting to persuade the blogger to relinquish his long-held beliefs about politics, economics, or religion in 230 words typed in CAPS LOCK mode. Then, someone who agrees with the blogger comments to tell you that you're an idiot. Then, someone who agrees with you posts something about the blogger's mother that isn't polite. And so on.

It's like the "Letters to the Editor" section in the newspaper or in a magazine – a place for public voices to be heard – only without the editing. It's easy and quick to post a blog or a comment and anyone can do it. Doing it responsibly and mindfully requires self control. With the digital medium comes a whole new set of etiquette, especially at the level of school, work, and government.

Stephen Hird, a recent graduate of UAT in Software Engineering said, "In the digital world, people have the anonymity to comfortably let their darker nature show through. If a person lacks a sense of citizenship in reality, he would be unlikely to gain that sense in the digital world."

The evolution of technology gave rise to blogs, which gave the public a voice, which began citizen journalism – the act of citizens playing an active role in the process of collecting, reporting, analyzing and disseminating news and information. This group of public voices grows every day and is starting to go by the name of the Digital Citizenry. All you need to do to attain Digital Citizenship is participate in new media technology, but there is a standard of behavior expected of you if you do. You are a digital patriot. Take pride in setting a good example for your fellow citizens.

**I CAN ALMOST SEE THE IQ DRIPPING OUT FROM THE COLLECTIVE EARS OF TODAY'S BLOGGERS.**

Maybe an uncontrolled CAPS LOCK rant is something we're all guilty of from time to time when a hot button gets pressed. How often do we scream at the television when some person on the screen says something we strongly disagree with? Or, how about the things we say to other drivers when protected and anonymous in our own private car? Isn't what takes place in wiki-cyberspace the equivalent, only now we have an audience other than the dog or the rear-view mirror?

The point of naming the population that participates in new media technology the Digital Citizenry is to foster a sense of personal responsibility in each of us. If bloggers continue to post personal attacks filled with profanity, the chance to expand and objectively challenge a new idea or way of thinking is lost. The chance to grow and learn is sacrificed in



exchange for baseless ranting back and forth – the kind of lowly communication that requires no forethought and that degrades the rich, diverse English language into an angry soup of approximately 20 words, most of them profanity. You can almost see the IQ dripping out from the collective ears of today's bloggers.

As Digital Citizens, it is our responsibility to maintain and promote a virtual community that welcomes new ideas, even if we don't agree with them. When an idea or perspective differs from our own, let's engage in respectful, objective, intelligent debate and legitimately try to understand – not necessarily agree with – another's point of view. This kind of cognitive interaction creates the environment necessary to advance higher order thinking.

Stephen Hird, a senior developer for Fox Entertainment and long-time blogger, gave an example of this from his experience: "I was reading a post about Web 2.0 design, which I disagreed with and posted a comment explaining why. Others commented on why it worked for them and the author answered my comment, which politely outlined valid points that made me think. The post was well articulated and the comments were on topic. It really helped me to understand the ideas behind the theory. The mature way that the comments were presented also made me more willing to stay open-minded."

The fact is, we are being pummeled daily by a deluge of data and unless we create time and spaces in which to reflect, we will be left with only our reactions. We Digital Citizens strongly believe in the power of blogs to transform both writers and readers from "audience" to "public" and from "consumer" to "creator." Blogs are no panacea for the overall numbing effects of a media-saturated culture, but we believe they are one potentially powerful antidote.

**THEN CAME THE POST-BLOGGER EXPLOSION.**

# Digital Citizenship

**DON'T BE ALL FINGERS,**

See the full interview with Stephen Hird and "Blogging – A Short History" at [www.uat.edu/digitalcitizenship](http://www.uat.edu/digitalcitizenship)

**did you know...**

You can read blogs written by UAT's Student Ambassadors at [www.uat.edu/blogs](http://www.uat.edu/blogs)



# NEAR SPACE

## UAT Students Fly High

Typical commercial flight altitude is 30,000 to 40,000 feet. UAT students developed a near-space balloon that ascended more than double that distance – far surpassing even the standard for near space altitude of 65,000 feet – reaching an incredible 92,999 feet.

The group worked for four months in preparation for the launch, hoping it would reach 90,000 feet, or more than 17 miles above the ground. On the morning of the launch, the sky was clear and the wind virtually nonexistent -- ideal conditions to launch and track the balloon's ascension. The balloon carried a flight computer to log and transmit data of its position, speed, and direction. The styrofoam box attached to the balloon also carried an inertial measurement unit, a pressure sensor, a GPS device, a radio, and video and still cameras.

The near-space balloon eventually burst at 92,999 feet, an Arizona record.

The world amateur high-altitude balloon record is 125,000 feet.

The balloon's remnants and

attendant devices were found 10 miles from the launch site nearly two hours later.

"We originally had our doubts about whether or not we could pull it off," said Sean Hillmeyer, project launch master. "We blew our expectations out of the water."

Professor Ryan Clarke set the goal of 90,000 feet, which, at the beginning of the semester, seemed impossible to the students of his SCI388 special topics class. The students split up into three groups: Engineering, Science, and Logistics.

The Engineering team was responsible for the flight computer and sensors as well as a wiki page to monitor the freight's weight.

The Science team planned experiments for the balloon and determined what data would be collected and analyzed.

The Logistics team ordered parts, researched launch sites, and managed contact with the Federal Aviation Administration to ensure compliance with regulations and codes.



# SPACE



The team faced challenges leading up to the launch -- some parts were late, preventing a prior flight and additional sensors for the payload. They were able to stay organized and plan around the delays, keeping their first launch date intact.

And, on the day of the launch, some observers claimed to have witnessed the balloon burst and start to come down. When the leftovers landed, the team found the instrumentation in great condition.

One of the team members, Bert Regeer, commented, "Standing on the ground looking up, you could see this little tiny white speck in the air, and then suddenly it blows up and it goes all over the place. That was awesome."

## The extent of their success registered slowly after the event.

"I think the next day everybody started to realize that we had just gone to space," said Hillmeyer.

This first launch was only a test of the engineering team's ability to construct a capsule that could attain near-space altitude, be tracked and documented, and be retrieved. Having met their goal, the next launch will include ideas for improvements such as trying a night launch, telescope tracking of the balloon, having the balloon drop little plastic army figures with information cards every 10,000 feet, detecting Wi-Fi points, and capturing more photos as the balloon climbs higher.

Another goal for UAT's next near-space balloon is to install access points on the balloon for warballooning, which means the balloon will carry a computer payload designed to seek out and map wireless networks on the ground via a high-gain antenna and GPS system.

"There's a ton of ideas, things we'd love to do, so I definitely think the class will continue in some form. We'll make that happen," said Hillmeyer.

“*I think the next day, everybody started to realize that we had just gone to **SPACE**.*”  
Sean Hillmeyer

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GAME DESIGN > GAME PROGRAMMING > NETWORK ENGINEERING > NETWORK SECURITY > ROBOTICS AND EMBEDDED SYSTEMS > TECHNOLOGY FORENSICS  
TECHNOLOGY MANAGEMENT > VIRTUAL MODELING AND DESIGN > WEB AND SOCIAL MEDIA TECHNOLOGIES



# Emotional Robotic Insect Remembers Your Face



MSR-H01 HEXAPOD KIT

**E**ver wanted your own robot? The ultimate pet for a techno geek would have to be a robot. A robotic buddy that thinks, acts, and feels while having access to all the information on the web instantaneously. It's an advisor and confidant. It's the Threepio to your Luke Skywalker. It's a reality that's not too far off.

Micromagic Systems is a London-based animatronics and robotics company for film and television. Its leader, Matt Denton, recently developed the iC Hexapod robot, which was featured at the Emotibot exhibit at the London Science Museum. The robot's name is iC and it's an insect that interacts with people in an emotionally expressive way. The robot pays attention to you – it actually looks at you and tracks your face as you walk around it. If you jump at iC aggressively, it backs away. If you hold its gaze, it takes and stores your picture.

Sean Hillmeyer, a senior in the Robotics and Embedded Systems program at UAT said, "The iC Hexapod is an impressively realistic robot. In the animatronics world, life-like movements are a key factor to the believability of a puppet and the iC Hexapod has some of the most realistic reactions I've ever seen."

Micromagic Systems has been building Hexapod walking robots

since 2000. Their goal, in the beginning, was to make a kit-form hexapod robot. They made the kit, but had a few kinks to work out, and they realized it was too expensive to put on the market to the general public. A robot kit that has 18 servos isn't cheap!\* So, they focused instead on making walking Hexapods for film and TV. They later worked out the kinks, and now have a kit available, which is pictured to the left.

## This Hexapod was dressed up like a six-legged tortoise and had its debut as one of the creatures in Hagrid's hut.

The first Hexapod was the V3 version, which was later recreated in a larger design built for the film, *Harry Potter and the Prisoner of Azkaban*. This Hexapod was dressed up like a six-legged tortoise and had its debut as one of the creatures in Hagrid's hut. In the end, it only made it into about five frames of the final film. But then it was used again in the next film of the series, *Harry Potter and The Goblet of Fire*, where it hung out in the back of Mad Eye Moody's classroom.

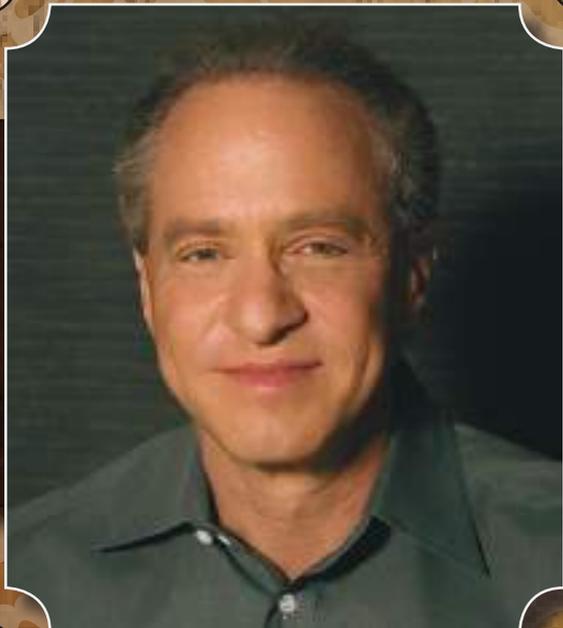
The latest version is the interactive, emotionally expressive iC Hexapod. Its ability to respond to and recognize faces gained it international attention. Retaining all of the movement and control characteristics of previous Hexapod versions, the iC adds a new level of interactivity.

"The inspiration for this project was simply to make a member of the ever-expanding Hexapod family into a piece of interactive robot art," commented its creator, Matt Denton, "or, as I would put it, into a piece of 'creative engineering.'"

\*A servomechanism, or servo, is an automatic device which uses error-sensing feedback to correct the performance of a mechanism.

Source: [www.micromagicsystems.com](http://www.micromagicsystems.com)

Learn more about Hexapod online [www.uat.edu/emotionalrobotics](http://www.uat.edu/emotionalrobotics)



*Leonardo  
Da Vinci  
Society* FOR THE STUDY OF THINKING

www.davincithinking.org

**did you know...**  
Leonardo da Vinci drew up plans for an armored humanoid machine in 1495.

## The University Of Advancing Technology Announces Its Fifth Inductee Into The Leonardo da Vinci Society for the Study of Thinking



As a teenager, Ray Kurzweil was building computers. First he built it, then he programmed it to compose a piano concerto that he subsequently played on television at age 17. The year was 1965. The show, "I've Got A Secret." Ray played the song, whispered his secret to the host, and answered yes or no questions from a celebrity panel until one of them guessed correctly that he invented a computer to compose the music he had just played.

Ray programmed his computer to recognize abstract patterns in famous musical compositions and reproduce them to compose an original piece of music. It was for a high school science project that won him First Prize in the International Science Fair. Ray was also one of the 40 Westinghouse Science Talent Search winners who got to meet President Lyndon Johnson in a White House awards ceremony.

So began a career filled with invention, innovation, world-wide recognition, and quite a few firsts. Ray was the principal developer of the first omni-font optical character recognition, the first print-to-speech reading machine for the blind, the first CCD flat-bed scanner, the first text-to-speech synthesizer, the first music synthesizer capable of recreating the grand piano and other orchestral instruments, and the

first commercially marketed large-vocabulary speech recognition program. He founded and developed nine businesses for market-leading technologies in artificial intelligence. One of Ray's many goals, to alter the nature of what it means to be human, is advancing towards fruition by way of his big thought hub for accelerating intelligence, kurzweilai.net.

Ray has a long line of distinguished accomplishments. Ray was inducted in 2002 into the National Inventors Hall of Fame, established by the U.S. Patent Office. He received the \$500,000 Lemelson-MIT Prize, the nation's largest award in invention and innovation. He also received the 1999 National Medal of Technology, the nation's highest honor in technology, from President Clinton in a White House ceremony. Ray Kurzweil will be the 2009 inductee into the distinguished Leonardo da Vinci Society for the Study of Thinking.

Ray was also one of the 40 Westinghouse Science Talent Search winners who got to meet President Lyndon Johnson in a White House awards ceremony.

Source: "A Biography of Ray Kurzweil" <http://www.kurzweiltech.com/raybio.html>



## ALUMNI PROFILE



## MICHAEL NIERSTEDT

**“Before success, a career being creative is less of a career and more a sacrifice.”**

## SUMMARY

UAT offered a degree that I wanted and they accepted most of my credits from my disappointing stint as a film major at another university. At UAT, I met Brandon Bare, an incredibly talented programmer. We started our own game studio along with a few others who would be loyal enough to work for no salary. During Teabag Games' two-year run, we produced five games and actually got to a beta phase on two of them.

After graduating, I decided to take a position as a software consultant for a company out of Germany. This also meant the end of Teabag Games, due to a non-compete agreement I was required to sign.

Since then, I've been working on screenwriting while working on my backup: IT Service Management. Ultimately, to be successful in games, or screenwriting, you have to be okay with failing a lot and trying things outside of your comfort zone. Once you strike the right balance and can present it to the right person, that's when success may finally come.

## EXPERIENCE

AT&T, Phoenix, Arizona IPTV Tier 2 Support, Present

EDMC, Phoenix, Arizona Assistant Director of Admissions, 2008

HYPERSOFT INFORMATION SYSTEMS, Sr Technical Sales Representative, 2007-2008

TEABAG GAMES, Owner, Design Manager, 2005-2007

## EDUCATION

University of Advancing Technology 2005 — 2007

Magna Cum Laude

2006 GDC Sponsored Attendee for Teabag Games

## EXTRA INFO

Working on three spec scripts to be reviewed by production companies.

## INFORMATION

**Current Job:**

Tier 2 IT - AT&T

**Education:**

B.S. Software Engineering

B.A. Multimedia and Design (UAT 2007)

**Connections:**

- Ian MacEwan: 2XL Games
- Brandon Bare: Programmer
- Kevin Hotalen: IGoMobile

**Industry:**

Information Technology

## FRIENDS



**Nate Bealor**  
Internship  
Extraordinaire



**Dave Bolman**  
Provost UAT



# TECHNOLOGY FORENSICS

YOU SEE THE PROBLEM, SOLUTION AND ALL OTHER VARIABLES SIMULTANEOUSLY. TAKE YOUR SLEUTHING TO THE NEXT LEVEL WITH A BACHELOR'S DEGREE IN TECHNOLOGY FORENSICS FROM UAT. OF COURSE, YOU ALREADY KNEW THAT.

[WWW.UAT.EDU/TECHFORENSICS](http://WWW.UAT.EDU/TECHFORENSICS)

UNQUESTIONABLY CORRECT.

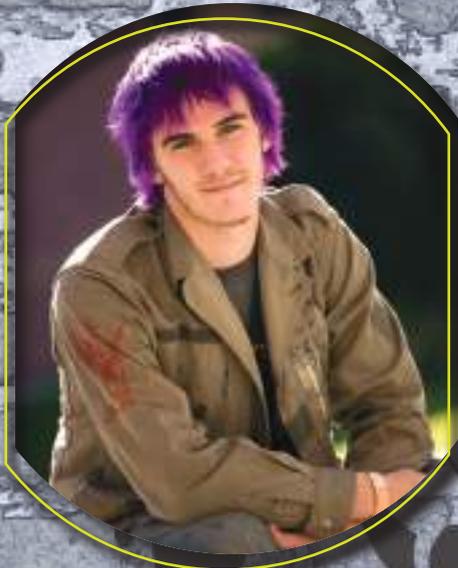


ADVANCING COMPUTER SCIENCE > ARTIFICIAL LIFE PROGRAMMING > DIGITAL MEDIA > DIGITAL VIDEO > GAME ART AND ANIMATION  
GAME DESIGN > GAME PROGRAMMING > NETWORK ENGINEERING > NETWORK SECURITY > ROBOTICS AND EMBEDDED SYSTEMS  
TECHNOLOGY FORENSICS > TECHNOLOGY MANAGEMENT > VIRTUAL MODELING AND DESIGN > WEB AND SOCIAL MEDIA TECHNOLOGIES

OH HELLO  
NICE TO MEET YOU  
LOVELY WEATHER

# MEET NEW FRESHMEN

READ MORE ABOUT UAT FRESHMAN AT  
[www.uat.edu/meetnewfreshmen](http://www.uat.edu/meetnewfreshmen)



## Zachary Priddy

**Major:** Robotics and Embedded Systems

**Home Town:** Chandler, AZ

I'm taking 16 credit hours right now, so my first year is really busy. The classes are challenging enough. It's a lot of work, but I like it that way. I was doing the music club and the fencing club, which was a great way to meet people. I get to focus more on my interests here. The class sizes are smaller, no big lecture halls.

When I was in high school, I searched Google to find robotics companies so that I could ask them what kind of degrees they look for. Somehow, I ended up on UAT's website. I knew right away I wanted to come here. It was the only college that offered an undergraduate Robotics degree.

After I graduate, I'd like to work in Japan at a robotics company for a year then come back here and work in robotics. As long as I'm not stuck with systems administration I will be happy and that is one of the reasons I chose to get my education at UAT.



## Kayla Harris

**Major:** Software Engineering

**Home Town:** Birmingham, AL

My first year is great so far – I have all A's right now. I took a lot of AP classes in high school, so I think that prepared me well for college. The campus is really close-knit. At bigger schools there's a lot of partying. There's partying here, too, but it seems like everyone still gets their work done. I can have fun and actually focus and get my work done. I'm able to talk to more people freely now.

After graduating, I'd like to become fluent in Korean and possibly work over there for a year. Then, I would like to work for the DoD.



## Devon Widick

**Major:** Computer Forensics

**Home Town:** Pueblo, CO

My first year is going really well. I love the campus and living right here, so close to classes. I'm getting all of my foundation classes done this year – English, Math, History – so I'm finding it easier than I expected. But I know once I get heavy into the computer classes, it'll be harder. I love the people here. Everyone's interested in the same stuff that I am.

I found out about UAT from an ad in *Xbox* magazine. At the time, I was interested in gaming, but then I came for the Fly-In G33K last Spring and learned about all the other degrees. I thought Computer Forensics would be cool and would get me into a good job. I'd really like to work at the NSA after graduation.

FORMER &  
SMALL SELECTION  
OF THE GREAT  
**geeky**  
**SWAG**  
YOU CAN NOT  
RESIST FROM

## UAT T-Shirt Blow-Out Sale!

Go to [uatstore.com](http://uatstore.com) and get any  
in-stock T-shirt for \$14.99.\*

\*Excludes the new UAT logo t-shirt. See [uatstore.com](http://uatstore.com)



**UAT**  
BOOKSTORE

## Way more than just a bookstore.

The UAT Bookstore is more than just all the main floor popular contemporary titles; all the books, magazines and study materials you'll need. It's also the world's only bookstore for fans, highly unique and the UAT gear.

Stop in if you're on campus or head on to [www.uatbooks.com](http://www.uatbooks.com) to shop online.

# WE SPEAK G33K

1. Stephen Hawking was born 300 years after the death of which individual?  
a) Sir Isaac Newton  
b) Nostradamus  
c) Sir Thomas More  
d) Galileo
2. When Luke Skywalker and Han Solo take Chewbacca to the prison cells, Luke says he has a prisoner transfer from what cell block?  
a) Omega-3  
b) 451  
c) 1136  
d) 1984
3. What is the answer to life, the universe and everything?  
a) Twinkies  
b) Existential Displacement Theory  
c) 42  
d) Deep Thought
4. In Firefly, all the Alliance Officer and soldier uniforms are leftovers from which movie?  
a) The Red Planet  
b) Space Balls  
c) Starship Troopers  
d) Battlefield Earth
5. Approximately 2% of the current Linux kernel was written by whom?  
a) David S. Miller  
b) Linus Torvalds  
c) Andrew Tanenbaum  
d) Ari Lemmke
6. Who began a long-running debate with the correct answer to #5?  
a) David S. Miller  
b) Linus Torvalds  
c) Andrew Tanenbaum  
d) Ari Lemmke
7. The role of Han Solo was turned down by which of the following actors?  
a) James Caan  
b) Burt Reynolds  
c) Al Pacino  
d) All of the above
8. How old was Bill Gates when he and Paul Allen founded Traf-O-Data?  
a) 14  
b) 17  
c) 21  
d) 40
9. Mario Brothers was a spin-off of what popular arcade game?  
a) Joist  
b) Donkey Kong  
c) Zelda  
d) Frogger
10. John Vincent Atanasoff and Clifford Berry are credited with creating:  
a) HTML Development  
b) ENIAC  
c) The first electronic computer, ABC  
d) Robotic servos

If you've pulled yourself away from  
your computer long enough to read this,  
**GET BACK TO YOUR MONITORS!**

Are you an average Geek or do you belong in the Geek Olympics?

## [ GEEK TEST ]

GET YOUR GEEK IQ AND FORWARD TO A FRIEND TO FIND OUT THEIRS.  
FIND THE ANSWERS AND YOUR GEEK IQ AT [WWW.G33KTEST.COM](http://WWW.G33KTEST.COM)



Mountain Dew 24/7  
Gamer girl XBOX  
ZIP FILES. ARCHIVE. BACKEND PROGRAMMING  
One of our IDS sensors just picked up a possible SQL worm  
Technology spanned by **FORCE**  
cell phones Memory chips  
MAC DADDY  
CRACK THE CODE Plasma TV's  
Internet's addiction  
HI-DEF Deftones  
DARK GEEK LASER  
Cyber Ritter  
FONT ISSUES DUST BUNNIES  
Anti-fashion online magazine  
web dump on your mom's vanity home page  
BETA TESTER. BRAIN DUMP. RETINA SCANNER.  
Video streaming coffee

# student blogs

Did you know that UAT has a MySpace page?  
Meet students and make friends by adding UAT to  
your network. Visit us at [www.myspace.com/uat](http://www.myspace.com/uat).



## Craig Ballard

Hello, my name is Craig Ballard. I am from Fort Worth, Texas, and have been working toward my Game Design degree at the University of Advancing Technology for the past two years. I decided to attend UAT because I like the classes offered and the environment. What I think makes UAT unique is its technology-centered curriculum, its community atmosphere and geek lifestyle. In my spare time I like to hang with friends, read books, play games, watch movies and sleep. I like being a Resident Assistant for La Estancia because I enjoy giving back to the school that is helping me make my dream job come true and it is nice to be able to talk to other students who share similar interests to mine. I am looking forward to graduating in the summer of 2009. Until then, I am excited to continue to be a student of this University as well as a Student Ambassador.

Visit Craig's blog at  
[www.uat.edu/meetcraig](http://www.uat.edu/meetcraig)



## Raynor Bugayong

Name: Raynor (a.k.a. Jim, Jimmy, SpAsian, Roy, Ray) Bugayong. Age: 19. Ethnicity: Filipino. Hometown: Yokosuka, Japan (or anywhere in Japan for that matter). Degree: Game Art and Animation (or Game Design...I'm really not sure yet). Special: The ability to tame and control a black hole for a stomach, meaning endless hunger and a ravenous appetite for any and every type of food. Ok, so that's basically me in a very small nutshell. If I had to say more, I'd probably never shut up. But, I guess that's the fun of an introduction, so let me have some fun. It says I come from Japan, but that's a bit improvisational, as I am a military kid. I've traveled many times between Japan and the U.S., spending one half of my life in each country. The U.S. is . . . ok, but Japan is by far the best! I love everything about Japan and what it has to offer and I can probably say the opposite for the U.S. Don't blame me though, blame the Asian in me. UAT is a pretty sweet place. Not sure what else to say . . .

Visit Raynor's blog at  
[www.uat.edu/meetraynor](http://www.uat.edu/meetraynor)



## JD Cerince

My home town is Anaheim, California, Disneyland area. My junior year of high school, I discovered UAT at a college convention. "We speak geek," the sign read above the UAT booth. I was hooked. After seeing the demo reels of the COR Project and talking to the UAT representative, I had to apply. I originally came to UAT with Game Design as my major. After the first semester, I decided I would rather specialize in the realm of 3D animation. I am currently the president of The Company, a club for all art students to utilize their skills in a simulated industry environment. I am currently specializing in character modeling for games and movies. I am always willing to help others and look for those who are excited to learn and who are passionate about what they do.

Visit JD's blog at  
[www.uat.edu/meetjd](http://www.uat.edu/meetjd)

# READY SET GO

## Early Bird

The UAT admissions process can begin as early as your sophomore year in high school. This can be a great benefit to you, since it allows you to create a relationship with a representative from the University who can help guide you every step of the way. In addition, applying early helps ensure acceptance:

- > Gives you access to UAT's Intranet.
- > Gives you access to your enrollment coordinator so they can help you and your family with this decision.
- > Keeps you connected with campus events and news.
- > Helps you become part of the UAT community.

Apply online today at <http://www.uat.edu/admissions> or request more information at <http://www.uat.edu/requestinfo>

## Who's admitted to UAT?

UAT's Admissions Office is looking for that student who is not only smart, but who will also be a fit with our geek culture.

Students who are accepted are passionate about learning in an environment designed around technology. For instance, a student who has been building websites, programming or building advanced robots is of more interest to UAT Admissions than someone who has not demonstrated aptitude and only has good test scores.

## So...what's Next?

Prospective students may apply online at [www.uat.edu/apply](http://www.uat.edu/apply). Admissions requirements and the online application are both found on this page.

Soon after your application has been received and reviewed by our Acceptance Committee, you will be notified of your acceptance status. If you need help or advisement with the admissions process, or if you just have questions, please contact our communication center at 877.UAT.GEEK.

## 2009 Dates & Deadlines

Summer 2009 Semester  
Semester: May 11 – August 21, 2009  
Summer Orientation: May 7, 2009

Summer 2009 Scholarship Deadlines  
Scholarship Deadlines are the first day of previous semester.

## Fall 2009 Semester

Semester: September 8 – December 22, 2009  
Fall Orientation: September 2-5, 2009  
Midterm Break: October 12-14, 2009

Fall 2009 Scholarship Deadlines  
Scholarship Deadlines are the first day of previous semester.

## 2010 Dates & Deadlines

Spring 2010 Semester  
Semester: January 11 – May 1, 2010  
Spring Orientation: January 7, 2010  
Spring Break: March 8-12, 2010

Spring 2010 Scholarship Deadlines  
Scholarship Deadlines are the first day of previous semester.

The average per academic year percentage of freshmen who receive UAT Academic Scholarships is 26%

# Bottom Bikini Geek

Meet SpongeBob SquarePants Writer Derek Iversen



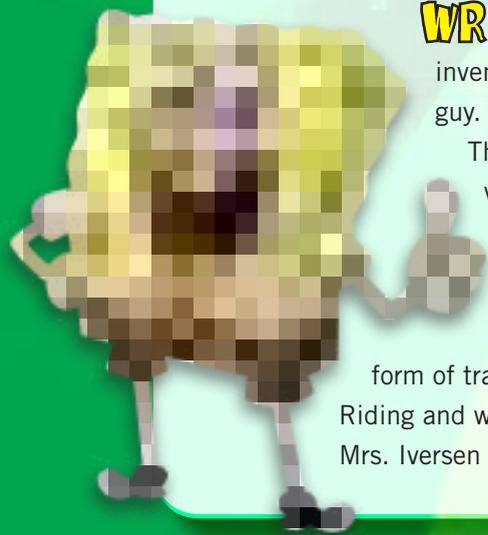
**THE TRAGIC FIGURE** As the geek-hearted *SpongeBob SquarePants*, a yellow sea sponge who lives in a pineapple at the bottom of the Pacific Ocean in a town called Bikini Bottom, writer Derek Iversen has a passion for telling the strange tales of our favorite geek sea creatures on Nickelodeon's hit TV series.

"In some ways, SpongeBob is a tragic figure, he tries to be something he is not in an attempt to fit in," said Iversen during our chat at Tech Forum, the annual three-day technology conference held at the University of Advancing Technology (UAT). Derek himself can relate to the "trying to be something you're not" theme. As a child, what he wanted to be when he grew up reflected mostly what he saw on television. That was until his 5th grade teacher, Mrs. Carol, saw something special in his creative writing assignments and told Derek he had a gift.

"The writing was something I had just always done without thinking about it," Derek said. His first short story was "The Three Boys Who Were Crazy," the name alone reveals what would be the common thread throughout all of Derek's writings and what would define his career: humor.

**WRITING COMEDY IS NO JOKE** Outside of his incredibly cool job of inventing new awkward escapades for our beloved fellow geek, SpongeBob, Derek is a busy guy. Several years ago, Derek formed a comedy writer's group called The People Who Do That. The group writes parodies of National Public Radio programs and performs them via weekly podcasts.

Like most geeks, though, Derek has a serious side to offset his goofiness—he's passionate about the environment. Aside from being politically active in favor of national green initiatives, Derek is an avid cyclist, with his bicycle as his principle form of transportation. "I'm out to prove you don't have to have a car in Los Angeles," he said. Riding and writing aren't his only passions, he's also getting ready to be married and the future Mrs. Iversen takes priority.



**“ IN SOME WAYS, SPONGEBOB IS A TRAGIC FIGURE, HE TRIES TO BE SOMETHING HE IS NOT IN AN ATTEMPT TO FIT IN. ”**



**CLIMBING THE LADDER** Derek first started working for Nickelodeon as Runner, meaning he ran errands and performed general odd jobs for different shows and sets. He came in through this door by way of a friend who worked there and put in a good word for Derek. He proved himself as a Runner and worked his way up in the organization, landing a job in the Mail Room. From there, he learned about a Production Coordinator position that was open for a brand new show, *SpongeBob SquarePants*. At the time, the series was only approved for a test run of one season. Derek won the job and worked as a Production Assistant and Coordinator for four years.

During that time, Derek never stopped writing. While pursuing his Bachelor's degree in Creative Writing, Derek had gotten involved with a campus group of creative, collaborative and diverse talents to write, direct and produce a show every week. Being involved with that group kept him producing material on a constant basis, which resulted in his practice of knocking on the *SpongeBob* producer's door all the time with new show ideas. "I figured they'd eventually either let me in or call the police," Derek said. They didn't call the police.

Derek started officially writing for the show two years ago. He works alongside three other writers and a story editor. "It's a very collaborative process," he said, something that utilizes the experience gained from his involvement in the sketch comedy writing group in college.

Derek told us that he draws inspiration for new show ideas from his own experience as a kid—times when he felt awkward, embarrassed, or just different from the majority of his peers. We asked him which elements of *SpongeBob*

he most resembles or identifies with. "SpongeBob really wants to fit in and be accepted but often is not," he said, "I had that feeling a lot when I was a kid. I mean, I wasn't porous, but..."

**TO ASPIRING GEEKS** When asked what advice he would give to the young, aspiring techno-geeks out there about to pursue a college education, he had this to say to the ones who want to write: "Unless you really enjoy writing, whether someone's paying you or not, whether someone's reading it or not, you should do something else. You have to really enjoy it for its own sake. I wrote for a long time without anybody paying for it or wanting to read it."

To all the techno-geeks out there, whatever your passions, Derek says: "Perseverance is more important than talent. Don't take no for an answer. If you keep knocking on the door enough, eventually someone will pay attention to you."

Derek added an example of how *SpongeBob* epitomizes what it means to be a geek from the first episode he ever wrote called "Not Normal," in which Squidward asks *SpongeBob* why he can't act like a normal person. In response to that question, *SpongeBob* does everything he can to figure out what normal is and to make himself that way. As a result, he's no longer a good friend to Patrick, he's no longer a good fry cook at the Krusty Krab, and he basically wrecks everything in his life. What *SpongeBob* comes to find out is that he has to accept himself just as he is, normal or not. When he does, he realizes that what he is—*SpongeBob SquarePants*, neighbor, friend, fry cook, citizen of Bikini Bottom, and true geek—is fantastic.



WHAT'S  
HOT

# HOT



## ARTIFICIAL LIFE

**PHILL MILLER**  
Associate Professor, Systems Development  
BA, Arizona State University  
MBA, North Central University

Will Wright's much anticipated and long delayed computer game *Spore* finally ships.

A team of artificial life researchers at the Howard Hughes Medical Institute has taken several important steps towards creating a new form of life from scratch. The team recently announced the construction of a model "protocell," and is now trying to synthesize a form of artificial DNA.

# HOT



## NETWORK SECURITY

**RUSS ROGERS**  
Professor, Network Security  
Handle: **VERTIGO**  
MA, University of Maryland  
BA, University of Maryland  
AA, Community College of the Air Force  
Certified: CISSP, NSA IAM & NSA IEM

Full out Red Team action is really taking the security world by storm.

Organizations have now had years to put their security ideas into practice and the best way to test them is a real world scenario! This is more than just penetration testing. Sure, we like exploiting bad configurations, software flaws, and nasty web applications, but it's more than that. Social engineering attacks, custom trojans, backdoors, phishing, and even physical entry vectors are used to compromise these organizations. If their security isn't up to par, we'll find out.

# NOT

Alice, Brother Jerome, Elbot, Eugene Goostman, Jabberwacky and Ultra Hal. On October 12th these six "artificial conversational entities" (A.I. computer programs) competed in the 18th Annual Loebner Prize for Artificial Intelligence. The competition subjects these programs to a Turing test where they must try to fool a human into thinking that he or she is having a conversation with another real person. If one or more of these programs manages to pull it off, it will be a major accomplishment. But, don't bet on it.



Do You Know What's Hot & What's Not?  
If So, Let's Hear It. Email us at  
[whwn@uat.edu](mailto:whwn@uat.edu).

# NOT

Default reports from vulnerability detection software are NOT hot.

Organizations want more than a canned report that may, or may not, fully apply to the company. Canned reports can often be full of false positives and bogus findings. On top of that, the software can't tell the organization "this finding is important to THIS organization because..." If you're a security expert and you're providing a default report with little or no analysis, it's probably a good time to look for another career path.

WHAT'S  
NOT



## ROBOTICS



**RYAN CLARKE**  
Professor of Robotics  
Handle: *Lost*  
BS, Arizona State University

**Computer Vision and 3D Machine Vision** - The OpenCV, open source tool chain by Intel. It puts some powerful tools in the hands of roboticists. Several of the DARPA challenge teams utilized these libraries in their self-driving vehicles.

**The Tekkotsu Robotics Development Open Source Framework** - An open source project supporting multiple robotics platforms. Tekkotsu was originally created for the Sony AIBO and later evolved to support various other platforms.

**Fable 2** - Midnight release!

NOT

Spore DRMs. Script kiddies.



## GAMING

**MICHAEL EILERS**  
Associate Professor, Game Studies  
BA, Ohio University



**Indie IPs** - Burned by Hollywood movie tie-ins and tired old franchises, publishers are bringing a new crop of games that are making their own independent mark on the industry. From *Nintendo's Blast Works* and *World of Goo* to Ubisoft's *I Am Alive* and EA's *Dead Space*, publishers are hoping to break new ground amid the glut of sequelitis.

**Conglomerate Engines** - Why write a game engine from scratch when you can build one with middleware? *LucasArts' Star Wars: The Force Unleashed* is a combination of four pieces of game middleware, and upcoming games may be composed of even more combined engines as some aspects (such as physics) become so complex that only experts can handle them. Which leads us to...

**Tools Creation** - When stitching together content from multiple engines, platforms and development methods, you need tools to make it work, and any game programmer that can write fast, bug-free and with user-friendly tools has an instant career with a healthy paycheck.

NOT

**DRM** - Duh. From piracy protection to PR disaster, the use of intrusive "digital rights management" that tries to limit what you can do with the software you legally own is provoking one consumer backlash after another.

**\$60 games** - Consumers have shown, both verbally and with a lower "attach rate" per console, that the \$60 game is putting a cramp in their gaming budget and forcing them to buy less and play less. Meanwhile, downloadable content for the consoles (most under \$10) is a huge hit. Will publishers get the hint that gamers like their games cheap?

HELLO  
HOW ARE YOU?  
WHAT DO YOU TEACH?

# MEET THE FACULTY

MEET THE ENTIRE UAT FACULTY AT  
[www.uaf.edu/facultybios](http://www.uaf.edu/facultybios)

One of the hallmarks of UAT is faculty who are as passionate about teaching as the students are about learning. UAT instructors engage and challenge students, whether in technology-based courses or general studies courses, to help them explore their passions and achieve their full potential.



## Bob Deaver

**Associate Professor:** Modeling, Materials, Lighting, Rigging, Character Animation  
B.A. from UC Davis, B.A. in Animation from Cogswell Polytechnical College

Bob has been teaching at UAT for four years. An industry veteran, he did character animation at Will Vinton Studios, making commercials for the likes of Clorox and M&M's. Bob knows what the production environment is like. It's all about hitting deadlines. He also learned that getting up out of his chair and acting out movements is essential to getting natural animations and not just generic moves. Bob appreciates that UAT pays attention to what's going on in the industry, which prevents the program from growing stale which sometimes happens at traditional animation schools.

*"The students are energized and really interested in the industry. They can produce really nice work because they're motivated and excited."*



## GAVIN REGNAERT

**Associate Professor:** Japanese, Chinese, East Asian Film  
B.A. and M.A. from Arizona State University

Gavin has been teaching for eight years total, including some time in Japan. A collector of GI Joe's in his spare time, Gavin is also a self-proclaimed Geek. He feels right at home at UAT. Gavin recognizes the difference UAT offers. Japanese and Chinese are challenging languages to learn, especially the writing aspect because they have different characters. Gavin cautions students to be prepared for a lot of work when they come to his classes, but also a lot of fun.

*"There's a lot of interaction between students and teachers at UAT. The students have a chance to be much more innovative with the technology available."*



## Micah Chabner

**Associate Professor:** English, Creative Writing, Mythology, Gothic Literature, Tolkien, and an upcoming *Dune* class that she's developing  
B.A. in English from Cal Poly, San Luis Obispo and an M.A. in Literature from Boston College

Micah was named after the Sheriff of the *Riflemen*, her father's favorite character of his favorite TV show. She started out in college as an Architecture major but quickly realized that she was better at creating pictures with words than with lines. Micah's teaching style is very dynamic and personal; she gets students involved and demands the best from them.

*"Once the students get to know me and respect has been earned both ways, they see the value in the work, and classes are a lot of fun."*

# gadgets + GIZMOS



## ◀ microSDHC Memory Card

Toshiba Corporation just announced the upcoming launch of a 16GB microSDHC card offering the largest capacity available on the market. The new cards meet strong market demands for cards combining high capacities with high speed data read and write. The new microSDHC can be used with an adapter that allows it to be used in SDHC slots. Mass production of the card will start in January of 2009.

Projected list price: Not Determined



## ◀ Wii Speak to get own channel for 4-way chats

Owners of Nintendo's upcoming Wii Speak will have the ability to use the console to chat with friends on the Internet. The Wii itself will receive an update that adds a Wii Speak Channel and allows as many as four users to join a voice chat at the top-level interface for the system. It's unknown whether any other features will be included or if the Wii Speak can be replaced with a similarly USB-based speakerphone or headset. People who buy the microphone are given a code that allows them to download the Wii Speak Channel from the Wii Shop.

Projected list price: \$29.99

## ▶ Altec Lansing Expressionist Bass Speakers

Altec Lansing will soon release for shipment what they claim to be the first 2.2 desktop speaker system, called the Expressionist Bass. You can forget about bass booming at your shins when you're listening to music at your desk. The Expressionist Bass package consists of twin desktop speakers with subwoofers built right in. Each houses a 1.5" driver powered by 3.5 watts for brilliant clarity in the mid and high frequencies, and a down-firing 4" subwoofer powered by 9 watts mounted in the base. Frequency response is rated at 40Hz - 16kHz. An auxiliary input allows convenient connection of any MP3 player.

Projected list price: \$129.95 for the pair



## ◀ Human Skull USB Memory Drive

This morbid-but-fun computer accessory features USB 2.0 High Speed and 2 Gigs of storage. It's Plug and Play plus hot swap capable. The drive supports Windows Vista and XP.

Projected list price: \$19.95



did you know...

Did you know that UAT is on Facebook? Look us up and add us to your network to get an insider's perspective on our culture and community.



## ◀ Nokia and BMW Video Concept Phone

Meet the Nokia BMW Video Phone. Take one look and it's obviously the BMW of cell phones, right? A thing of beauty. It's what you get when you combine the ultimate driving machine with the ultimate video mobile phone. Evgen Design, a Ukrainian firm, has created this "Nokia/BMW" phone concept which employs a "push-to-open" mechanism to rotate the display by 90°, turning the device into a usable video camera. The phone features GPS navigation and a powerful video camera though details are not disclosed. You won't see this in the shops any time soon as it currently only exists in the minds of its Ukrainian designers.

Projected list price: Not Determined

# MAKING IT GAMER STYLE

Did you know the next Tech Forum is Nov. 4-6, 2009? Join industry speakers on campus for three days of emerging technology and conversations. Tour the campus, meet other students and faculty, and see if UAT is the right place for you!



After talking with the experts, we came up with the following eight steps to take that will help you secure a position in the increasingly competitive gaming industry:

## 1 BUILD YOUR PORTFOLIO

UAT offers classes specifically catering to the gaming industry. All aspects of the industry are covered with a degree from UAT, leaving you with real technical experience as well as theoretical knowledge to take into the job market. You'll also have the opportunity to put together a portfolio of great work while in school by working on group projects with other students who share your passions.

"It's extremely important to work on projects to build your portfolio. Even if you do a small project, do it very well. It's better to have a little bit of something incredible than something huge and mediocre," said Robert Huebner, CEO of Nihilistic Studios.

Nate Cox, a graduate of UAT working at Nihilistic Studios said: "While in school, get involved in projects. Develop your social and professional network."

## 2 UNDERSTAND THE INDUSTRY

To get into the industry at any level from retail to magazine editor to artist—know your stuff. Play a ton of video games. Get to know the hardware and software. That means everything from the Nintendo DS, to the latest PC first-person shooter and everything in between. Even though you may not like a certain next-gen home console or the latest baseball game,

you still need to be knowledgeable about them, so start playing everything you can get your hands on.

Then, work on your own project. You can use a favorite game as a template and work to recreate that game or to embellish it, or you can get involved with a group that has a project idea that interests you.

"It is so important that you make sure you like the story or theme of whatever you decide to work on," said Iverson. "One of the ways to do this is to ask yourself if you can identify with any of the characters in the project."

## 3 DEVELOP YOUR WRITING SKILLS

Practice writing. Regardless of what area of gaming you're interested in, you will have to do some sort of writing, reviewing, and/or publishing. This especially applies to careers in gaming magazines or storyboard/scriptwriters, but it will be relevant to almost every aspect of game development. One idea is to start out by writing your own reviews of the games covered in gaming magazines. Have your friends read them, post them on your blog, or submit them to news and reviews websites for publication. Re-write articles and interviews you find interesting. Just keep practicing.

## 4 LEARN JAPANESE

This may not have immediately occurred to you when thinking about getting into the gaming industry, but translators and voice actors are as integral to major games as the design team. At least half of all current games come from other countries,

with an overwhelming majority coming out of Japan. Many Japanese titles are translated into English for American gamers to enjoy. Now, take into account the fact that over 3,500 titles were released in 2007 between the big three home consoles. If just a quarter of those required a translator, you can see why this is an important job. A typical translating job may run the entire course of development, which means steady work. Large companies even staff a full-time, in-house translation team. UAT offers a major in Japanese as well as translation internships, which brings us to the next step.

## 5 GET AN INTERNSHIP

Most major studios will require a college degree in a related field, on-the-job experience, and possibly a demonstration or test of your skills. A strong portfolio will help you land the best internships, where you can further develop your portfolio and get real experience at the same time. An internship at any game studio, large or small, is a great opportunity to get your name out there and start doing some real work.

The best internships can be as competitive as your first real job in the industry. In preparation for them, Michael Sanders of George Lucas's Industrial Light and Magic had some advice: "Show your talent by posting your work to YouTube or industry forums such as 3D Pro or CG Character and back it up with a killer website. While these forums may not be discipline specific, there are a lot of industry experts who are part of them. It's all about exposure."

Reinforcing the importance of working on student projects, Sanders said: "Studios want someone who can sit down and

The multi-billion dollar gaming industry is booming and looking for more new talent. If you think you can beta with the best and you have ninja mathematical skills worthy of the stress caused by a complex programming language, you're on your way. Or, maybe you're a writer or a designer—a strictly front-of-the-house kind of talent. Either way, you'll benefit from some advice from those who've made it.

Industry experts were available at the University of Advancing Technology's (UAT) Tech Forum to answer some questions. Derek Iversen of Nickelodeon, Robert Huebner and Nate Cox of Nihilistic Studios, and Michael Sanders of George Lucas's Industrial Light and Magic (ILM) were among the experts on hand to offer advice on how breaking into the industry might be accomplished by an up-and-coming techno-geek.



jump into any tool. Projects give you the opportunity to work with those tools and improve your technique.”

## 6 PICK A LOCATION

Move to an area that has a large amount of gaming studios and/or game-related companies. This is a big commitment, but if you're serious about getting into the industry, it's nearly mandatory. Most likely, it will be a major metropolitan area. It's important to think about and research where you're going to live long term.

## 7 FIND THE RIGHT JOB

A job in the video game industry could literally be a hundred different things—you'll want to pick what's best for you. Take some time and research the possibilities. Get a clear picture of what's out there. It doesn't feel like work when you love what you do for a living.

Our industry experts had some advice to follow when looking for the right studios. According to Cox, “Stability trumps all. You want to find a studio that doesn't have a history of massive layoffs and games that don't ship. It's also important to find a studio with a company culture that fits you.”

“Typically, smaller studios give you the chance to gain exposure to

more tools and build your skill set. You'll also get more involved with the entire production process of a project. This gives you the opportunity to become familiar with the intricacies of each step involved in production. That versatility will help when you try to get hired by that big studio,” said Huebner.

Once you find the studios you feel match you, “Persistence, persistence, persistence,” says Sanders. “I sent out over 100 resumes and got only four responses and not one was from ILM.” It took just one year and some key contacts later before ILM wanted Sanders. “The key is what I refer to as ‘pinpoint networking.’ I was constantly networking and trying to find my way into ILM. Remember, persistence.”

## 8 REMEMBER, IT'S A JOB

Learn to meet deadlines and work under pressure. Unfortunately, it isn't all fun and games. The gaming industry is fast-paced, filled with last minute changes, long nights, and strict deadlines. What may start out as an easy project could end up being the project you spend 80 hour weeks on for the last two months of development. What worked last month may be out this one. Code needs to be re-written and new designs need to be drafted—all this with a looming deadline. Adaptability is key.

## BEYOND THE EIGHT STEPS

Once you find your internship or first job and begin working for a studio, the networking continues. To find out more, visit [www.uat.edu/gamerstyle](http://www.uat.edu/gamerstyle)

# GAME PORTFOLIO

Sean Carrica, a recent graduate of UAT in Network Security and Software Engineering, gained recognition for his online portfolio on GameDev.net, a respected professional community of the gaming industry.

Sean Carrica - <http://seancarrica.com>

Sean's online portfolio is presented in a clean, user-friendly website that includes his resume in multiple formats, a brief bio, a gallery of projects he's completed, and code examples.

The bio is an important piece of the portfolio, as it gives a sense of who

you are and what you are interested in doing. The projects should represent a variety of skills and demonstrate the depth and breadth of your capabilities, as Sean's does.

The reviewer on GameDev.net, Lee Winder, summed up Sean's portfolio this way:

“As you can probably tell, Sean's portfolio is a solid piece of work that contains a good range of projects and is presented very well. The use of a simple, clean URL is a real bonus, too. If there were a few things that I would expect to be done slightly differently it would be the following

- Allow me access to the executables so I can actually play the demos - this goes a long way to impressing a reviewer.
- While the YouTube links are useful, include the source files for download, too, as this gives more people access to the material and download speeds are generally not an issue.
- More completed C++ projects would be a real bonus, rather than some incomplete ones that may appear to be tacked on.”

# DUCKS AMONG US.



*The baby duck that got stranded at UAT after last year's monsoon season and then adopted by the students and faculty who fed and cared for him, is now all grown up with a family of his own. That's right, our very own Mr. Duck found a female and settled down, had some ducklings with her. The whole crew enrolled at UAT, but the slackers never go to class. All they do is hang out around the commons and scam for food. Just where this mysterious Mrs. Duck came from is yet to be discovered. There are rumors that she's a secret project of the A-Life program or maybe Robotics, and now the ducklings are hybrid life-forms—part animal, part mechanical—who are secretly designing games out of grass, twigs, and mud.*

*A full investigation is in the works to discover the validity of the rumors. Meanwhile, the ducks are a permanent fixture at UAT. Seeing as how they never attend class, they're not likely to graduate. Hybrid life forms or not, UAT's resident ducklings are welcome additions to our community.*

Go to [www.uat.edu/duckparazzi](http://www.uat.edu/duckparazzi) to see more photos of the duck family.

# UAT DEGREE PROGRAMS

## ON-CAMPUS PROGRAMS

Bachelor or Associate of Science degrees are offered in the following disciplines:

- Advancing Computer Science
- Artificial Life Programming
- Game Programming
- Network Engineering
- Network Security
- Robotics and Embedded Systems
- Technology Forensics
- Technology Management
- Web and Social Media Technologies

Bachelor or Associate of Arts degrees are offered in the following disciplines:

- Digital Media
- Digital Video
- Game Art and Animation
- Game Design
- Virtual Modeling and Design

Master of Science degrees are offered in the following disciplines:

- Advancing Computer Science
- Emerging Technologies
- Game Production and Management
- Information Assurance
- Technology Leadership

## UAT-ONLINE PROGRAMS

Bachelor or Associate of Science degrees are offered in the following disciplines:

- Game Programming
- Network Security

Bachelor or Associate of Arts degrees are offered in the following disciplines:

- Game Art and Animation
- Game Design
- Virtual Modeling and Design

More online at [www.uat.edu/majors](http://www.uat.edu/majors)

# **FIND** *what's* **OUT** *next*

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The University of Advancing Technology (UAT) is a unique, technology-infused private university that was founded by a techno-geek for techno-geeks. Our mission is to educate students in the fields of advancing technology to become innovators of the future.

### [www.gamedegree.com](http://www.gamedegree.com)

You love games. Live for games. Want to make your career about games. But, to break into the gaming industry, you'll need a degree.

### [www.networksecuritydegree.com](http://www.networksecuritydegree.com)

Start your education in Net Security, Technology Forensics, or Information Security at an NSA-recognized institution.

### [www.alifedegree.com](http://www.alifedegree.com)

Artificial Life Programming involves breaking accepted paradigms in the software engineering field and moving forward with paradigms that mirror life systems. It's a degree for innovative thinkers seeking a wide range of programming possibilities in a changing world.

Call your  
fellow geeks  
out

IF YOU, OR SOMEONE YOU KNOW, IS NOT PLUGGED INTO THE 411 COMMUNITY OF ULTIMATE GEEKDOM, SIGN UP FOR GEEK 411 MAGAZINE AND RECEIVE A FREE UAT SHIRT. GO TO [ALPHAGEEKNATION.COM](http://ALPHAGEEKNATION.COM)



### [www.g33ktest.com](http://www.g33ktest.com)

What kind of geek are you? Take UAT's Geek Test and find out where you fit in the wide world of geeks!

### [www.uat.edu/freshmanexperience](http://www.uat.edu/freshmanexperience)

UAT provided six incoming freshmen with HD cameras to document their journey from high school to their first year: "Freshman Experience" at UAT. See what they captured and how their lives have changed.

### [www.geekedatbirth.com](http://www.geekedatbirth.com)

Learn more about where you fit in at the University. What programs are you interested in? Start your future here!

# BACK on UAT GROUND

## LEARN

UAT strives to provide an environment where students earn the knowledge and accomplishments of a traditional college education while achieving comprehensive expertise in advancing technology, thinking and innovation.

## EXPERIENCE

Each student contributes their own personal knowledge and uniqueness in a way that establishes a cohesive community of learners and technologists where individuals of like mind and passion experience a hands-on knowledge of technology through curricular and co-curricular interaction.

## INNOVATE

UAT students learn that innovation is the lynchpin, not only of technology, but also of their experiences in the world as lifelong learners. This message is reinforced in the classroom, as well as in the social interactions within the UAT community.

## BACKGROUND

UAT is a private university with a deep focus on academic excellence and technology education. The University is nationally recognized for its Year-Round Balanced Learning program and innovative technology degree programs. UAT offers students a well-rounded education in a non-traditional setting that promotes collaboration learning and technology in ways that model the future of private college campuses.

## ACCREDITATION

UAT is a senior college accredited by the Accrediting Council for Independent Colleges and Schools (ACICS). UAT is a candidate with the Higher Learning Commission and an affiliate of the North Central Association.

## STUDENTS

The University student body is comprised of more than 1200 students coming from all 50 states and six continents.

## FACULTY

The University supports 64 full- and part-time faculty members who are leaders in both industry and education.

## LOCATION

Tempe, Arizona (Phoenix Metropolitan area)

## 2009 TUITION

Undergraduate tuition: \$8900.00 per semester  
Graduate tuition: \$5400.00 per semester  
UAT-Online tuition: \$5150.00 per semester  
For more information on UAT Tuition please visit [www.uat.edu/tuition](http://www.uat.edu/tuition)

## FAST FACTS

**Average Class Size:** 15  
**Student-to-faculty ratio:** 14:1  
**Average Incoming GPA:** 3.18  
**Average SAT Score:** 1666  
**Average ACT Score:** 25

## ALUMNI

UAT produces graduates who go on to great success with some of the country's largest companies, game studios and production houses. Companies such as Intel, Microsoft, Blur Studios, Sony Online Entertainment and Motorola have hired UAT graduates. Visit [www.uat.edu/careerservices](http://www.uat.edu/careerservices) to see who has hired UAT alumni.

UAT has developed a system known as Year-Round Balanced Learning (YRBL) that allows students to choose and combine courses and areas of interest to customize a degree that will help them reach their goals. YRBL provides a unique environment in which students earn the knowledge and accomplishments of a classic college education while achieving comprehensive expertise in advancing technology.

The Accrediting Council for Independent Colleges and Schools is a national accrediting agency, recognized by the United States Department of Education. ACICS's accreditation of degree-granting institutions also is recognized by the Council for Higher Education Accreditation (CHEA).

The National Centers of Academic Excellence in Information Assurance Education (CAEIAE) Program is an outreach program designed and operated initially by the National Security Agency (NSA) in the spirit of Presidential Decision Directive 63, National Policy on Critical Infrastructure Protection, May 1998. Additional information regarding the National Centers of Academic Excellence in Information Assurance Education Program may be obtained by contacting the Public and Media Affairs Office at (301) 688-6524 or by email at [nsapao@nsa.gov](mailto:nsapao@nsa.gov).

# ASK A UAT STUDENT

**Q: WHAT'S YOUR FAVORITE THING ABOUT UAT?**

Living here is great. That just carries over into the classrooms, too. Also, Fencing Club and Nurf Wäz Club are awesome.

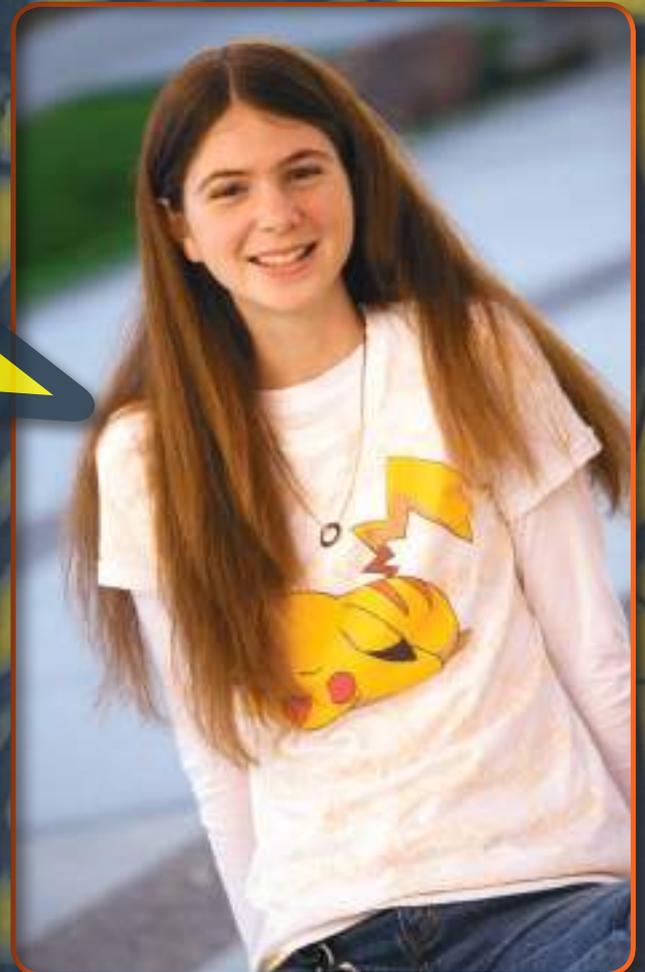
"The rooms are really nice and the people make the atmosphere great."

**Q: HOW DO YOU THINK UAT IS DIFFERENT FROM OTHER COLLEGES?**

It's definitely more technology friendly with the wifi everywhere and that big bank of computers in the commons. A lot of my friends are going to older, more traditional colleges and I just think UAT is a lot cleaner and more comfortable than those colleges.

**Kim Mann**  
**Class:** Freshman  
**Major:** Game Art and Animation  
**Home Town:** Fresno, California

READ MORE STUDENT Q&A AT  
[www.uat.edu/askastudent](http://www.uat.edu/askastudent)



HI, ARE YOU BUSY?  
I NEED SOME ASSISTANCE  
HOW CAN I HELP YOU?

# MEET THE STAFF

MEET THE ENTIRE UAT STAFF AT  
[www.uat.edu/staff](http://www.uat.edu/staff)

The staff at UAT is as passionate about technology as the students and faculty. And they are just as passionate about their mission to assist students in every facet of their college experience. We are unique because we have created, and continually nurture, a community of students and staff — self-styled geeks, many of them—whose personal and professional lives revolve around technology.



## HELEN NOONAN

Liaison

As a Liaison for UAT, Helen goes out into the community and spreads the word about UAT by giving presentations to high school students and representing UAT at various events. A graduate of Northern Arizona University, Helen spent several years as a social worker helping kids learn the importance of education and teaching them life skills for the classroom, their social lives, and their home lives – a vocation she has carried through into her work at UAT.

*“Kids are starving for information to make the right decision. This is a big decision for the whole family. There’s no way that a student won’t succeed in this environment that UAT has set up.”*



## BUCK JORDAN

Director of Founder's Hall

Buck is the guy making sure Founder's doesn't fall apart or burn up. As with his staff of Resident Assistants, he lives where he works, always on call and looking out for the students. He comes from Fort Wayne, Indiana, where he taught high school after obtaining his Master's degree in Education from Defiance College. From there, he got involved in residence life. He loves working closely with the students in a setting where he can really get to know them. Buck loves that there's no traditional computer lab at UAT. Instead, the network of computers is in the common area where everyone gathers and is available to students 24 hours a day, seven days a week.

*“UAT is like a playground. Everyone is here because they're interested and engaged in technology.”*



## CINDY PETERSON

Financial Aid

Cindy Peterson helps students find resources for funding their education at UAT. She graduated from the University of Texas in San Antonio and has been working around kids ever since. She loves working with students, finding money for them to pay for school, and watching them succeed. Cindy loves the close community of students. *“The way the campus is set up, there's a lot of interaction between students and the staff and faculty. Everyone works together.”*

*“I can't see myself working anywhere but here at UAT. It's a close, family-like environment and the students can feel that.”*

CREW



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# CLUBS & GROUPS



## HATS

The H.A.T.S. Club is a network security group that focuses on expanding the art of Net Sec. The group seeks out and discusses new ideas in the hacking field and shares ideas about information security technology.

## PROGRAMMING CLUB

The Programming Club was founded to create a group environment for members to work on projects and to share knowledge regarding the C/C++ language. The group develops a combination of game and application projects in an effort to build skills, foster teamwork, and expand knowledge.

## BUILD CLUB

The Build Club was established to share knowledge about various game engines and how they work. All levels of experience come together in this group to learn and teach the fundamentals of building game mods.

## THE ACADEMY

The Academy helps game design and animation students build powerful portfolios by meeting to share new information, give tutorials, critique and offer peer to peer training. The Academy focuses on modeling/texturing, animation, 2D and 3D art.

## TRADING CARD GAME CLUB

The Trading Card Game Club plays a variety of Trading Card Games with an emphasis in Magic: The Gathering. The group offers both casual and tournament play.

## TAPS

The purpose of T.A.P.S. (The Academic Paranormal Society) is to explore the world of the paranormal and the technology that is used to conduct paranormal investigations. The group conducts investigations and reports news regarding paranormal activity.

## WEB DEVELOPMENT

The purpose of this group is to gain a better understanding of working on websites in a group environment.

## JAVA USER GROUP

To join the Phoenix Java User's Group, all you need to do is register and attend. This group is aimed at anyone with an interest in Java technology. There are no membership dues.

## PC USER GROUP

Phoenix PCUG is based on the idea of users helping users learn computers. The Phoenix PCUG is a member of the Association of Computer User's Group (APCUG). The Phoenix PC Users' Group meets three times a month, to reach users all across the Valley of the Sun. Come join us!

## COLD FUSION USER GROUP

Adobe's RIA technologies enable you to rapidly build and deploy the most engaging applications across browsers and on the desktop. The Phoenix Cold Fusion Users Group hosts special events to share exciting new information on Adobe's platform tools and technologies for building RIAs. Be part of the fun and excitement and join the rest of the Adobe developer community by participating in this group!

## PAINTBALL

UAT has a competitive paintball team – Team Adrenaline! In-season games will take place January – April and then break for five months, then pick back up for October and November. Off-season takes place May – September and then back on for two months before we end the season in December due to finals and holiday events.

## NET SECURITY

DC480 is working on creating a device that will be entered in the annual DefCon conference for hackers. The DC480 group gets its name from DefCon (DC) and the local 480 telephone area code.

## ANCIENT GAMES

The Ancient Games Club is for games that are considered "ancient" to the student body because they are not electronic in nature. Our goal is not just to play games but to learn from them by not just exercising our mental muscles, but learning why games should be taught to children. For each game we will learn how to play it, but also strategies for winning, how to teach it, what it teaches and how to best use the game for educational benefit.

## RHYTHM GAMES

DDR (Dance Dance Revolution) is a game with a simple concept: it is based on hitting arrows that are flashing to the beat of the music. To achieve this, you must step on the appropriate arrows on the dance pad under you with accurate timing—hence it makes the illusion of dancing. Songs range from slow and easy to technical and fast—meaning there is a wide selection of difficulty. As you progress in game play the concept behind the four arrows begin to evolve into the coordination of foot movement and, if desired, dance ability. And that's all there is to it!

## ANIME CLUB

The purpose of the Anime Club is to bring together fellow students to watch and discuss anime, how it has evolved, where it is going and how the students can find a niche if they want to work in or with anime. Our goal is to promote Japanese anime.

## PHOTOGRAPHY

The UAT Photography Club takes regular trips around Arizona and surrounding communities to take photographs. The club hopes to showcase a lot of its work in coffee shops and galleries around the Greater Phoenix Area. The club will be going over many technical and artistic techniques with photography.

## ERROR404

Error404 is the student-based newspaper for UAT. Started in the Summer of 2006, Error404 has been steadily growing and getting better over time. We're constantly looking for people to write articles, take pictures and help bring more stories to the University. We want people who are willing to go find the stories. If you're that person, we want you! Error404 releases issues monthly and focuses stories around the University, the student community and recent industry happenings.

## EXTREME SPORTS CLUB

UAT's Extreme Sports Club offers skateboarding, rock climbing (indoor and outdoor), BMX biking, surfing and snowboarding!

## FENCING CLUB

We just recently competed against some of the best fencers in the country. Five fencers went into the competition electrically and two non-electrically. Come join our team!

## BIBLE CLUB

The UAT Bible Club exists to provide a forum for the study and discussion of The Bible. We have a relaxed, informal atmosphere where everyone is equal and free to be heard. All are welcome to participate, regardless of beliefs.

## QUARTER CIRCLE FORWARD CLUB (QFC)

We are the fighting games club. We do everything from SF: 3rd strike to Tekken to Melty Blood, we play it all. Discuss techniques, moves, combos, etc. Not good at fighting games? Come anyway and practice with us!

TO LEARN MORE ABOUT UAT'S CLUBS & GROUPS, GO TO [WWW.UAT.EDU/CLUBS](http://WWW.UAT.EDU/CLUBS)

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