GEEK411

UNIVERSITY OF ADVANCING TECHNOLOGY STUDENT LIFE MAGAZINE
ISSUE 10 | SUMMER 2013

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REAR ADMIRAL SCOTT SANDERS FIRES UP CAMPUS

67 ACCELERATED IMPACT
STUDENTS WIN CITY OF SURPRISE TECH CHALLENGE

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WITH UAT'S LATEST GAME PROJECT: PALIO

50 DUTY CALLS
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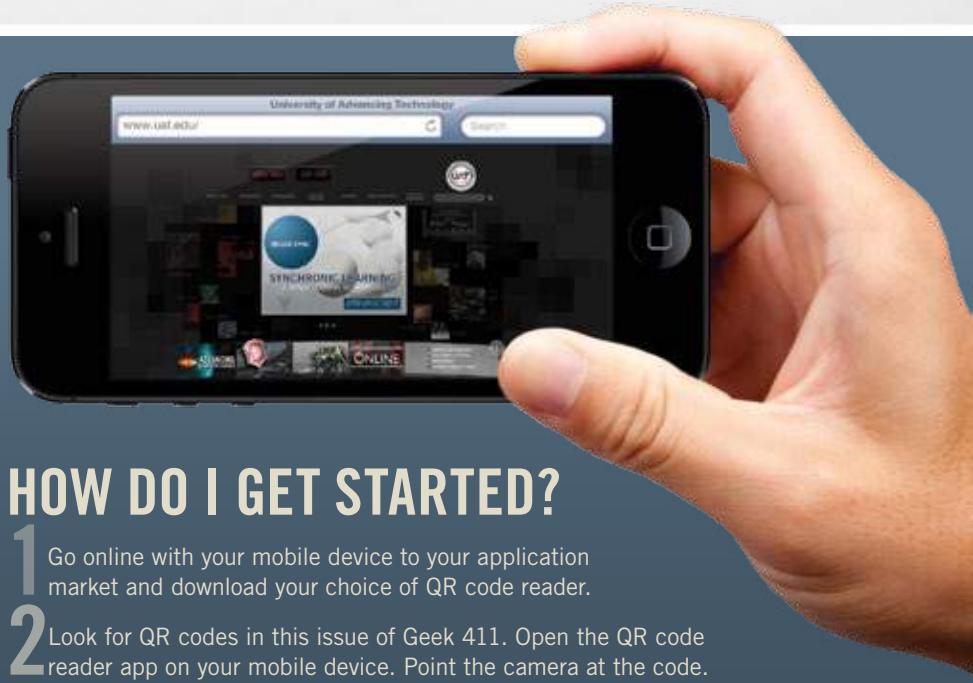

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Students Win City of Surprise Tech Challenge

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October 30-November 1, 2013

Join technology industry experts on the campus of UAT for **presentations & conversations October 30-November 1, 2013.** It's a great event to get insiders' views on opportunities and breakthroughs in network security, game development, digital animation, robotic systems, advancing computer science and many other fields.

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WELCOME TO TOMORROW

www.uat.edu/techforum
Tempe, AZ
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November 2, 2013
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March 29, 2014
June 21, 2014
November 8, 2014

www.uatflyingeek.com
Tempe, AZ

DEFCON

www.defcon.org
Las Vegas, NV
August 1-4, 2013

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

GDC 13 GDC NEXT

www.gdconf.com
November 5-7, 2013

GDC NEXT (the successor to GDC Online) focuses on what's next in smartphone & tablet, social, independent, cloud and other major forms of games. Whether you are a designer, programmer/architect, producer, artist, marketer, businessperson or all of the above, you'll find this show vital to making great games—and—making money in the most vibrant new areas of the game industry.

off campus

Tyler Coleman & Winston Powell

INCUBATING

When is UAT more than the premier private university for students of advancing technology? When it's an ongoing resource for alumni.

Tyler Coleman and Winston Powell are two such alums (spring 2012 graduates) who are utilizing UAT as an incubator for Tyler's business, Retora Game Studios. Tyler is founder and creative director. Winston is his partner.

UAT's experiential learning focus infuses many students with the passion, education and resources that often results in their pursuit of independent technology development following graduation.

But, their support for students doesn't end at commencement. UAT continues to offer their resources for all alumni, including budding entrepreneurs, post graduation. These include all fields of study including game and art design, robotics and embedded systems, software development and network security.

Providing incubator support for the development of Retora is one example. Retora specializes in full service game and mobile app development, including individualized art and design services. Tyler and Winston's office space is the Commons area at the university. They have access to all the space, equipment and technology they need, and spend between 6 and 8 hours there every day of the week. There is no typical day, which makes it nice. Tyler focuses on marketing, business development and game programming. Winston focuses on game art.

"Our office is UAT," says Tyler, a game design major. "We use the computers and software, including some of the software that uses Retora's licenses, and various hardware items from the university library, such as an iPad I rent, a camera, reference books, etc." Tyler brings the iPad to and from work every day, and both he and Winston carry with them some of the team's incidentals such as headphones, writing tablet, other small items and the occasional apple—the kind you eat.

"The idea of opening an office somewhere for our small group is a waste of money at this stage," says Tyler. "We want to make sure we're using our money in the best possible way—to develop games and mobile game apps."

Retora's business strategy outlines a plan to focus initially on contract work. The team will take on outside projects to build capital to help them realize their goal that turns their focus inward so they can develop their own original (IP) work.

"Our path is the one of least resistance to get to where we want to be," says Tyler. Tyler is dedicated to growing Phoenix as a premier location for game development and would like Retora to be the catalyst. He envisions Retora as being a larger studio or collection of smaller studios within the next five to 10 years.

"Many mobile companies in the world started the same way we are with contracts helping to pave the way for independent work," says Tyler. "Rovio developed *Angry Birds*. HalfBrick studios is another one. They went from contract to making their own games and becoming successful in doing it. Our direction is similar."

He and Winston started Retora with their own app creation, *Hello Color,* which is now available for sale on iTunes for 99 cents. Hello Color is an amusing casual arcade-style game all about color matching and analysis. To play, you match colored circles with a changing background. They're continuing to create other fun, original projects such as Night Lights, a Pictionary game of sorts where you draw with colored lights, and one other project that is under wraps at the present time. But, to keep building their own creations, they need the support of contracts and also are seeking backing from corporations that develop games.

The Lost Medallion is one such contract. Retora is developing a game based on this faith-based, family, action/adventure film slated for nationwide release in spring 2013. Tyler and Winston were referred to Bill Muir, writer/director at Methinx Studios in California, by Digital Video Professor Paul DeNigris who met Muir at a film convention. Muir brought up the idea of making a Lost Medallion game and Professor DeNigris recommended Retora.

One of the appealing things about UAT for Tyler when he applied was that it was open to alumni after graduation.

"We didn't have to approach UAT to request use of the space. We are simply allowed to use it, as per the guidelines of the school permitting us as alumni

For more information, visit www.UAT.edu/retora

LEFT TO RIGHT: Thiago Pereira, Kendal Cormany, Tyler Coleman and Winston Powell

Tyler Coleman with Provost Dave Bolman

SUCCESS

to use the Commons space. Although most of the 'people' resources are for current students, we try not to take much of the staff's time."

They feel fortunate to have the support of interns. Alumni Kendal Cormany (Game Programming, 2012 graduate) and Thiago Pereira (Game Programming, 2012 graduate) have joined the Retora team and work on Tuesdays and Thursdays, or whenever else they're needed. Tyler and Winston agree this arrangement is all they've hoped for and expected, and are appreciative of UAT's support, including that from Provost Dave Bolman and Professor David Wessman, to name a few.

To show their appreciation to UAT, they try to give back by helping with various things, including Game Jams, workshops, etc. "We like to try to give back at least as much as we take from the UAT community," says Tyler.

"Tyler has been a wonderful mentor for students," says Provost Bolman. "On the weekends, I see him mentoring during Game Jams and GDC workshops. It's awesome how much time he has devoted and continues to do for our student community."

Tyler and Winston have wanted to start their own business together since they worked on a student project their first semester at UAT. Tyler attended college for business administration before UAT, and he's always had a thing for running a business. So, for him, it was just the right path. Winston felt the same way. "I've always been interested in being part of a smaller game development team working on independent games," says Winston. "Tyler and I knew early on at UAT that we wanted to pursue game development together. Every game, every project was our high point—until the next project." Those were defining moments that helped them both grow.

"While they were students, Tyler and Winston participated in many real world opportunities, thus giving them the springboard to develop Retora Games," says Provost Bolman. "Because they created several projects, and participated in Game Jams and GDC before they graduated, they're much more prepared for all the future opportunities ahead. UAT is the seed."

Having Retora based at UAT is great not only for Tyler and Winston but also contributes to the experiential environment UAT fosters for current students.

"Their time at UAT post graduation demonstrates to current students that here's a set of recent grads in the Commons actually taking it to the next level and building a business," said Provost Bolman. "These students have the opportunity to see and hear more about how real production works."

Industry analysts agree that incubation support positively impacts a start-up company's success. Retora Game Studios can attest to that.

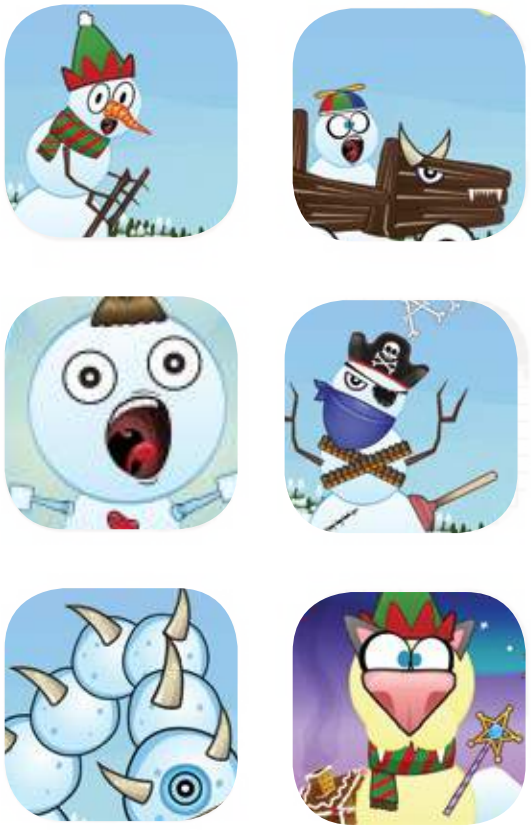
RETORA GAME STUDIOS

UAT has been the resource for many alumni throughout the years, including one alumnus who wanted to come back to campus and film students in a video shoot 10 years ago, another alumnus involved in a small embedded systems project and yet another in a small business innovation research (SBIR) grant that warranted initial prototyping work on campus. UAT is open to all alumni in all degree programs. For more information about UAT's resources available to alumni, contact Provost Dave Bolman at dbolman@uat.edu.

did you know...

Bill Gates was only 14 years old when he started his first company? Test your Geek IQ on trivia like this at www.g33ktest.com.

Frosty goes digital: in one student's snowman app



Innovation comes from many sources, including the desire to create some good clean fun. Advancing Computer Science major Mark Price embodies the spirit of UAT innovation by designing unique game apps everyone can enjoy. Mark hails from Palm Springs, Calif., and currently is living in Salt Lake City with his wife and son.

Just before the holidays in fall 2011, Mark launched his first app *Make-A-Snowman* that has snowballed quickly to become a smashing success. Available on iOS devices, the app can be downloaded from the iTunes App Store in both free and pay versions.

Mark's app gives players of all ages the ability to create their own rendition of a winter snow creature with an assortment of different accessories from which to choose. Some accessories are free; others available at a nominal charge. And, when he says all ages, he means it. He play tested the app on ages ranging from 18 months to 65 years old. Everyone loved it, including the youngest participant, his young son.

The idea for *Make-A-Snowman* came from Mark seeing lots of apps with holiday themes but few that were appropriate for all ages and stimulated creativity and imagination. His motivation was to bring a new standard to entertainment apps for lasting enjoyment.

During October, with the winter season and accompanying holidays just around the corner, Mark went to work, spending an estimated 40 hours total developing the app and programming it in Xcode and Objective-C languages. He made the app available in early November to people around the world through iTunes, and announced a snowman building contest that awarded an iPad 2 to the winner. Second and third prizes also were awarded. A Michigan resident took home the grand prize for creativity that incorporated shades of the popular *Angry Birds* game theme.

While taking online classes at UAT, along with working as an engineer and being a devoted husband and father, Mark worked hard to juggle everything during the past two years to bring this app and his app business, Apptooth.com, to fruition. Often this meant starting many days at 4:30 a.m. His long days are paying off; he's beginning to see the fruits of his labor. Now, business is flourishing as *Make-A-Snowman* grows and several more apps are in the pipeline, some already planned for international release with celebrity endorsements.

"I can't say much more right now, but keep your eyes and ears tuned to the news," says Mark.

The *Make-A-Snowman* software has generated 100,000 downloads to date and praise from players and media outlets. Mark claims that it has more than 50 five-star reviews and has ranked in the top 40 for Entertainment. "No other app compares with it," says Mark.

Mark is making a marketing push for the app to get it into the top 5 Entertainment on iTunes. Android versions for phones and tablets (including the Kindle Fire) are in the works, being programmed in Unity and C Sharp. But, it might be next holiday season before he releases an Android version of his newer apps.

The app's artwork was created by Ronald Conley, a UAT alumnus from Columbus, Ohio, who majored in Game Design in 2007. They met at Ronald's current job as a 2D artist for a gaming studio in Scottsdale, Ariz.

"*Make-A-Snowman* really helped me understand how to transition my skills into the iOS world," says Ronald. "I like to play with different styles in my illustration and wanted to bring a lot of that into this app. Other 'building' apps were very straight forward with their options, and I wanted ours to stand out creatively as well as functionally. I think I learned a lot with *Snowman*, and it's only the first of many."

"My classes at UAT definitely gave me the broad knowledge of programming and security necessary to approach clients and talk intelligently in the real world about business apps and entertainment," says Mark. "It's empowering to create something and get it into someone's hands."

Mark's passion for business app development opened a door for him to mentor other UAT students. Recently, he conducted online seminars on how to build android apps and iOS apps respectively. "It was a great experience," says Mark. "UAT is becoming an emerging player in this field."

NAME: Mark Price
WHAT: Make-A-Snowman, an app where you can create your own snowman with a variaty of accessories
MAJOR: Advancing Computer Science

Check out the company's Facebook page at **www.uat.edu/snowmanfb**

UAT BUZZ

IN BY DESIGN: UAT JOINS CUMULUS

UAT's induction into Cumulus opens up a new world of opportunities for students and faculty.

That's because UAT's digital media art education is world class! These are more than mere words; the university has earned this prestigious distinction.

UAT has been inducted into Cumulus, the International Association of Universities and Colleges of Art, Design and Media, thanks largely to Digital Media Professor Vesna Dragojlov, whose passion for expanded learning is introducing media, art and design, and human interaction students to media arts on a global scale.

Cumulus is an exclusive, international association of colleges of art, design and media, the only global association to serve art and design education and research. It is a forum for the partnership and exchange of knowledge and best practices, with only 189 members from 46 countries and a mere 10 members from the US. UAT joins other top design institutions and earns the respect and credibility of the world's finest art institutions.

Membership expands learning opportunities and creates connections for UAT students locally and abroad who are combining technology with elements of art, design and aesthetics in the fields of Digital Media and Human Interaction.

"Membership in Cumulus is a capstone for us because it's a great association and a very important partner in providing the best education and opportunities for our students," says Professor Dragojlov. "To get in is not easy."

UAT's international learning opportunities include:

- SIA Rome
- UAT Study Abroad program
- Annual trip to Ars Electronica multimedia festival in Linz, Austria
- Aalto University in Helsinki, Finland
- Universite de Nantes in France
- Willem de Kooning Academy School of Art and Design in Rotterdam, The Netherlands

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creative linking

www.cumulusassociation.org

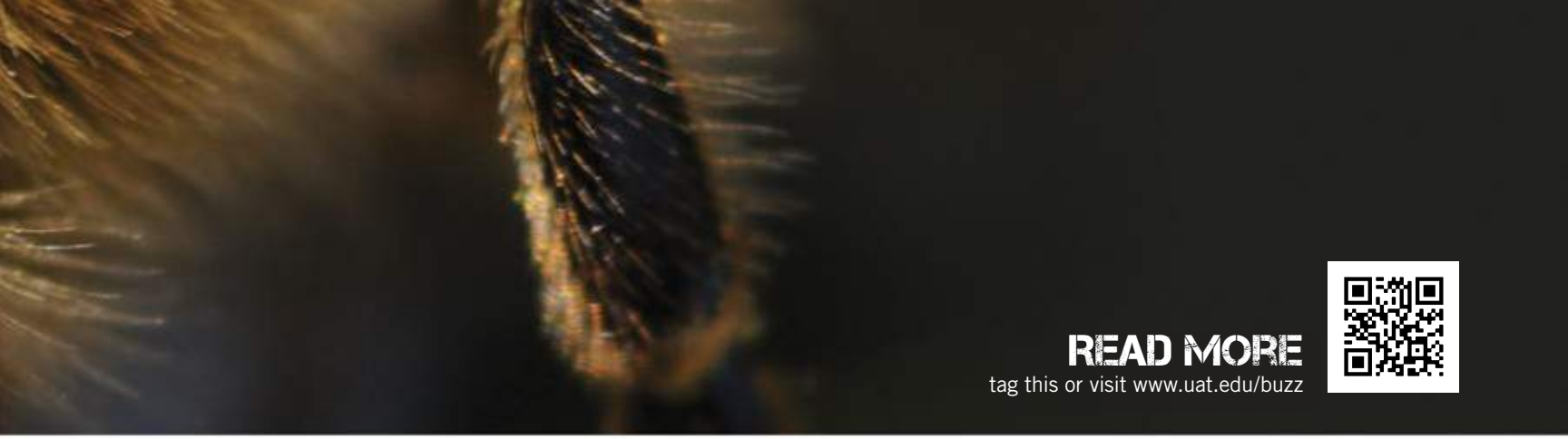
ROOT THE BOX EARNS CORPORATE SPONSORSHIP

Opportunities to learn, experience and innovate are everywhere at UAT. Many of these hands-on learning opportunities are outside the classroom and created by the students themselves. Take Root the Box, for example. It's an extracurricular hacking competition started by UAT's Network Security students that's fun, educational, safe and promotes ethical hacking techniques.

"Root the Box is a safe sand box where students can fail, succeed, and experiment without fear of any legal repercussions," says Zachary Julian, a Clarkson, Mich., native who graduated with a Bachelor of Science in Network Security in summer 2012. He's helped to organize a total of nine competitions, including the upcoming one in January. During Root the Box, targets are designed to mirror real world scenarios. Conducted twice a year, sponsors include Cummings Engineering, Stach & Liu and IT Partners.

ROOT THE BOX

"We want everyone from everywhere to come, test and have fun," says Zach. "You can sign up as an individual or as a team. Participation is free, and complimentary food, drinks and hardware are provided." To register for the next competition, visit **www.rootthebox.com**.



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UAT STARS IN 48-HOUR FILM CHALLENGE

In a near sweep that represents UAT's cutting edge curriculum in digital video production, UAT students won three out of four awards and took home the "Persistence of Vision" Cup for Team UAT during this fall's film challenge featuring the student film *Apart from Your World*.

During the weekend, two teams of UAT DV students competed in the 5th Semi-Annual Valley-Wide Inter-college 48 Hour Film Challenge, hosted by Grand Canyon University (GCU). This event is hosted by GCU in the Fall and by UAT in the Spring. Twelve teams total competed, representing GCU, UAT, ASU, and both Scottsdale and Glendale Community Colleges.

GCU Professor Gregg Elder assembled a panel of judges from the UAT and GCU faculties, as well as from the local film community. Four awards were given, Best Acting, Best Technical, Best Directing, and Best Overall Film. The Best Overall award included not only an individual trophy for the film, but the custodianship of the newly-minted POV Cup which, like the Stanley Cup, will be housed on the winning team's campus until the next challenge.

The UAT film, *Apart From Your World*, a musical exploration of geekdom filled with visual effects sequences inspired by *Buffy the Vampire Slayer, Superman, Star Wars,* and many more, won Best Acting for UAT (student Nathan Benson, who also sang), Best Technical, and Best Overall Film.

See photos from the event at **www.facebook.com/UATDigitalVideo**
Watch the film at **www.uat.edu/48hrChallengeFilm**

GRRCON

UAT alumnus and Network Security major Wolfgang Goerlich (May 2012 graduate) took a covert channels course (NTS470) back in November 2011. For a final project, he wrote code to demonstrate one covert channel.

His final project was just the beginning for Wolfgang, an online student from Michigan. He was invited to present his project at GrrCON, an information security and hacking conference held twice a year in Michigan. This conference provides the Midwest regional information security community with a venue to come together and share ideas, information, solutions, forge relationships, and, most importantly, engage with like-minded people in a fun atmosphere. In addition, he was hired recently as the information systems and security manager for a Michigan-based financial institution. His presentation focused on the latest steps to ensure .Net application security.

"The problem today is that defenders have very few options to prevent an attacker from infiltrating their network," says Wolfgang. "Criminals use malware to find new ways to invade."

Even after he graduated, Wolfgang continues to innovate by expanding his project to demonstrate a variety of different covert channels, along with shell code execution and IDS evasion.

Wolfgang was inspired at UAT, which he feels prepared him well for the real world and opened the door for him to present at a major conference. In return, he wants to give back by building his library of .Net testing tools demonstrating different scenarios of attacks and defense to arm defenders with the additional tools they need to continually be ready. It's available at **https://github.com/SimWitty/Incog**

"Users can test out covert channels in a safe fashion without downloading malware," says Wolfgang. "In this way, defenders are more informed and prepared when an attacker strikes. As new malware appears, I will add to the library to provide new examples so defenders have an evolving tool set."

For more information about Wolfgang's GrrCON presentation, go to **www.uat.edu/GrrCon**

REAR ADMIRAL SCOTT SANDERS VISITS UAT

TECH SUPREMACY AT SEA

In recognition of Navy Week that also coincided with the 200th anniversary of the War of 1812, UAT was honored to welcome Rear Admiral Scott E. Sanders of the United States Navy on March 29, 2012. He addressed UAT students and faculty.

How do these anniversaries coincide with UAT's technology education focus? Sanders spoke directly to the interests of his audience—technology—and the factors that have played a critical role in advancing the Navy for years, dating back to the 19th century and beyond.

Navy Week is designed to provide citizens with an opportunity to learn the importance of U.S. naval efforts. "We (the U.S. Navy) want to let [citizens] know a little bit about what we're doing day in and day out that [involve] some pretty dangerous things, but are routine because of the way [Navy personnel are] trained up," said Rear Admiral Sanders.

In our current age of technology and information, advancements include ballistic missile defense and cyber warfare to protect citizens.

"So you're hitting a bullet with a bullet in outer space at tremendous velocities," he added. "That is the type of intellect that this nation has, and that's the type of intellect that the people in this room have here.

He goes on to say, "Our nation, luckily, is at the top of the class when you get to cyber defense; however, we don't want to be getting to where we're trading blows with cyber [attacks]… because [adversaries] will shut down economies, they'll shut down petroleum distribution and our way of life very quickly because we're so reliant on the free flow of commerce and goods not only on the water and on the land, but also through the networks of the banking system and all that work."

Rear Admiral Sanders was posted to actively deter, disrupt and suppress piracy through Combined Task Force 151 (CTF 151). CTF 151 is a multinational force that covers approximately 1.1 million square miles off the coast of Somalia. He shared some of his realizations from that experience from several years ago. He shared his personal thoughts about the level of threat from the Somalian coast, what the motives that drive coastal piracy are, and even the decommissioning of the oldest active naval ship in the world, the USS Enterprise.

He urged the attendees, "[That is why] the people in this room with the brain power [are] going to be having to design solutions to problems that we don't even know exist today with technologies that may not be invented for another five or ten years."

At home in the geekosphere

When is a professor at home while at school?

"I'm absolutely at home here in every sense of the word," says Professor Miller, who has been on the UAT faculty since 2000. He teaches everything computer science: applied, theoretical, intro to programming, language programs and artificial life programs.

UAT is his comfort zone.

As a young boy who grew up in Arizona, most of Professor Miller's computer science skills were self taught, with the help of his dad, who worked for Honeywell and Hewlett Packard programming main frame computers before going into business to design custom dental lab and case management software.

"My dad spent countless hours answering my questions and showing me how to do things," says Professor Miller.

Professor Miller joined the army after high school and served in Desert Storm. When he returned, he attended ASU, where he earned his undergraduate degree in Humanities Studies with a focus on technology and society.

He went on to earn an MBA because "I'm most interested in business application development in computer science."

In his graduate studies, he also made sure to wedge in a specialization in applied computer science.

Why would someone who has been a full-fledged geek ever since he could toddle get a degree in the Humanities, which studies the human condition? He wanted to make sure he was well rounded in his ability to relate to people as well as he can to computers.

His Humanities degree has helped him a lot. "It shapes the way I think about things," says Miller. "I now have a holistic view and am more of an out-of-the-box thinker. Technology is one of many tools to good ends but not the end in and of itself."

With a master's degree in hand, Professor Miller was just finishing up a job working for a company developing property management systems when his wife saw an ad for a computer science instructor at UAT and encouraged him to apply, saying he'd make a great teacher.

He has proven countless times how true that statement is.

Professor Phill Miller

Among his many accomplishments at UAT, Professor Miller has:

> Designed and established the Artificial Life Programming major
> Received four ALPHA BETA KAPPA National Honor Society awards for outstanding instructor
> Received two awards for Outstanding Faculty Achievement in Learning
> Received one award for Outstanding Faculty achievement in Experience

Professor Miller wants to make sure graduates are job ready. Wherever possible, he includes real world tools, applications and processes, so when students leave, they are familiar enough to step into a position and take the ball and run. He doesn't know anyone here among the faculty who is not "ridiculously passionate" about helping students prepare for the real world. It's a level support that is unsurpassed in collegiate environments today.

"From the faculty to the staff to the students, they're my people here at UAT," says Professor Miller. "I'm most comfortable having those geeky conversations and here no one thinks I'm weird. Whether the discussion is about artificial life, binary search trees or anything else, I'm having honest conversations with people who love the things I love."

Professor Miller's mission is simple: to educate students so they can go out and be their best to create the best possible future for all of us.

"I admit there's a certain degree of selfishness on my part when it comes to teaching students," he says. "I want to live in the exciting future that UAT students are creating."

One other high point in Professor Miller's job is when he gets emails from alumni who are thinking of him as they're reading a book and want to connect with him about it.

Professor Miller aspires to always learn and grow as a teacher, even after 12 years and many notable accomplishments at UAT. He wants to harness the proof of learning to ensure students really understand and apply the material. He always tries to remember what it was like to be a student, what it was like when he was trying to understand new information and what it felt like when he finally understood it.

"The most important thing they can learn here is how to learn," says Professor Miller. "That's because technology is not static. My first computer and the one I use today are so different. You need the skills to continually transition, adapt, change and grow. I want them to learn how learning works so they know how to keep learning themselves, without a teacher to guide them. If I can be sure that every student who graduates from here doesn't need me ever again, that is the true measure of success. My goal is for students to take the reins of their own education."

"What UAT does inexplicably better than anyone, is to find, recruit and retain the most passionate, talented people that I've ever seen," he adds. It's a small university but the concentration of commitment, talent, knowledge and capability on this campus is intoxicating."

Meet more UAT faculty at **www.uat.edu/faculty**

WE'RE COMING TO A TOWN NEAR YOU

FALL 2013 NACAC SCHEDULE

Birmingham National College Fair	**Birmingham Jefferson Convention Complex**	
	Sunday, September 15	1:00pm - 4:00pm
Minnesota National College Fair	**Minneapolis Convention Center**	
	Tuesday, September 24	9:00am - 12:00pm
		4:30pm - 8:00pm
	Wednesday, September 25	9:00am - 12:00pm
Chicago National College Fair	**Navy Pier**	
	Saturday, September 28	11:00am - 3:00pm
Milwaukee National College Fair	**Delta Center**	
	Sunday, September 29	12:00pm - 3:30pm
Cincinnati National College Fair	**Duke Energy Center**	
	Sunday, September 29	1:00pm - 4:00pm
Indianapolis National College Fair	**Indiana Convention Center**	
	Tuesday, October 1	9:00am - 12:00pm
		6:00pm - 8:00pm
New Orleans National College Fair	**Ernest N. Morial Convention Center**	
	Tuesday, October 1	9:00am - 12:00pm
		6:00pm - 8:00pm
Baton Rouge National College Fair	**Baton Rouge River Center**	
	Wednesday, October 2	9:00am - 12:00pm
		6:00pm - 8:00pm
Denver National College Fair	**Colorado Convention Center**	
	Saturday, October 5	1:00pm - 4:00pm
Long Island National College Fair	**Nassau Veterans Memorial Coliseum**	
	Sunday, October 6	11:00am - 3:00pm
Kansas City National College Fair	**Kansas City Convention Center**	
	Thursday, October 10	5:00pm - 8:00pm
	Friday, October 11	9:00am - 2:00pm
Jacksonville National College Fair	**Prime F. Osborn III Convention Center**	
	Saturday, October 12	9:00am - 1:00pm
Orlando National College Fair	**University Of Central Florida Arena**	
	Sunday, October 13	1:00pm - 4:00pm
Greater Phoenix National College Fair	**Phoenix Convention Center**	
	Sunday, October 13	11:00am - 3:00pm
St. Louis National College Fair	**Saint Louis University - Simon Recreation Center**	
	Sunday, October 20	12:00pm - 4:00pm
Greater Ft. Lauderdale National College Fair	**Ft. Lauderdale/Broward County Convention Center**	
	Wednesday, October 23	9:00am - 12:00pm
		5:00pm - 8:30pm
Boise National College Fair	**Idaho Expo**	
	Wednesday, October 30	9:00am - 2:30pm
		6:00pm - 8:00pm
Portland National College Fair	**Oregon Convention Center**	
	Friday, November 1	9:00am - 12:00pm
	Saturday, November 2	1:00pm - 5:00pm
Spokane National College Fair	**Spokane Convention Center**	
	Tuesday, November 5	9:00am - 12:00pm
		6:00pm - 8:00pm
Greater Washington DC National College Fair	**Walter E. Washington Covention & Trade Center**	
	Wednesday, November 6	9:00am - 12:00pm
		6:00pm - 8:00pm
Seattle National College Fair	**Washington State Convention & Trade Center**	
	Friday, November 8	9:00am - 12:00pm
	Saturday, November 9	12:00pm - 4:00pm
Philadelphia National College Fair	**Pennsylvania Convention Center**	
	Sunday, November 10	11:00am - 3:00pm
Baltimore National College Fair	**Baltimore Convention Center**	
	Tuesday, November 12	10:00am - 1:00pm
		5:00pm - 8:00pm
	Wednesday, November 13	10:00am - 1:00pm
Atlantic City National College Fair	**Atlantic City Convention Center**	
	Thursday, November 14	9:00am - 12:00pm
		6:00pm - 9:00pm

TRAVEL SCHEDULE

Did you know...

National Admissions Representatives spend more than 700 hours on the road each year chatting up students about UAT.

The UAT Road Show is on its way across the country to spread the word about its 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 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 National Admissions Representative at 877-UAT-GEEK (877-828-4335).

FOR MORE INFO VISIT US AT www.uat.edu/nacactravel

SHARK FISHING

NETWORK SECURITY ALUM SAFELY LANDS BIG ONE

When you catch a shark that's more than half as big as your boat, in a split second it can turn a fishing excursion into your worst nightmare. But, for UAT alumnus Kevin Stevens and his nine-year-old son, Hunter, it was just another day of shark fishing from their kayak.

The two had spent three hours shark fishing off the coast of Galveston, Texas, when they decided it was time to go home. A seven-foot black tip shark had other plans. The father-son pair had caught a big one. Roger started reeling him in, but the shark was coming at him so he didn't feel it on the line.

"It realized there was a kayak in front of it, and it took off running," says Kevin, who graduated in spring 2012 with a Bachelor of Science in Network Security. He currently works at Alert Logic in Houston, a company that has hired several UAT Net Sec graduates. "This thing pulled us up and down the beach for an hour while I was holding it," he adds. "I was exhausted and could barely hold it anymore. We also were caught in a rain shower for 20 minutes of that time."

Father and son knew they had a big shark on the line, but when they finally got it into the boat, they saw the actual size and were shocked. "I've done shark fishing so much, and spent all my life on the water, that I really wasn't afraid at any moment," says Kevin. He and Hunter catch and release them, and Kevin is a volunteer in the Noah Apex predator program that tags and releases sharks for research.

While Hunter is not afraid of sharks, he was a little bit scared when he saw the dorsal fin come out of the water and then the tail. With all the media attention the two have received, Hunter has been dubbed Shark Boy Hunter.

It wasn't long before they took their kayak out again for more shark fishing. They fish year round, but concentrate on shark fishing in the summer months. In September 2012, they actually caught a bigger shark.

The Stevens family's shark adventures have sparked so much interest that some producers are exploring a TV reality show.

SEE THE VIDEO WWW.UAT.EDU/SHARKBAIT

THE palio project

racing from the past to the future

WHO: A horse racing game modeled after the ancient Palio di Siena Race

WHAT: Thousands of photos, 50 hours of video footage, one amazing UAT game project

WHERE: Siena, Italy

THE palio project

UAT project team travels to where old and new worlds collide.

Real-world experience for seven UAT students involved traveling to Siena, Italy last summer to attend the Palio di Siena horse race, accompanied by Professor Paul Andrus and Professor Lynn Understiller.

While seven went on the trip, 19 students in total comprise the team creating the indie game *Palio* designed to capture the race's full splendor.

This isn't just any horse race. Steeped in more than 600 years of history dating back to the Italian Renaissance in 1581, the Palio di Siena is the world's oldest annual horse race and also considered the most dangerous. Tickets are at a premium and sell out months in advance.

Today's Palio di Siena race consists of horses and riders dressed in their respective colors to represent nine of the original 17 contrade, or city wards. Jockeys ride bareback and sometimes are thrown from their horses as a result of the treacherous course, high speeds and competitive spirit. They're on an unfamiliar horse, racing against bitter rivals who will do practically anything to win. The race circles the Piazza del Campo three times and requires luck, skill, focus, and determination from each player. Anything goes! In the blink of an eye, a jockey will either bring glory to the family or fall to another.

This 13-day trip from June 26 through July 9 gave the opportunity of a lifetime to students to experience the race July 2, the pre-race's Corteo Storico pageant, and all the pomp and circumstance in the days prior to the event. The opening of the race with the pageant took four hours.

The race itself lasted 90 seconds. The research to get it just right for the game has taken months—including the trip to where it all happens.

Seeing the Palio di Siena race is a life-long goal among many people in Italy and beyond. The next best thing to going to the actual race itself is playing the game.

Because jockeys can be thrown, horses in the Palio can win the race without a jockey. For this reason, each player in the *Palio* indie game assumes the role of a horse.

Players are given a lot of freedom as to how they want to run the race. You can be as sportsmanlike as you'd like… or play dirty; you can try to push your rivals into the wall or knock them from their horse, but don't expect them to play fair either.

In the game, jockeys are being engineered for independent movement. While riding, they can whip their own horses or ones adjacent. They can also kick other jockeys to knock them off balance, but during the kick they can be knocked off themselves because stability is jeopardized. If a jockey becomes dislodged, the player loses all abilities associated with the jockey while the horse gains speed due to weight loss.

It was important to the team that the Palio's culture, with its rich colors and energy, be accurately reflected in the game. No drab browns and grays were used in the art design so that every bit of color and vibrancy that each contrada contributes can be represented to create an almost storybook ambiance.

"Surprisingly, there aren't a lot of horseracing games out there, and most that have been made are actually gambling games where the player bets on horses or over the top breeding systems with minor racing events," says Devon O'Mara, a senior graduating in Game Art and Animation. "We are creating more than a game; we're providing an experience. After you're done, regardless if you win or lose, you understand what The Palio actually is—a cultural event that has been going on for hundreds of years compressed into a single moment."

The team wants to take this small indie game to GDC in March 2013 to demonstrate the full extent of UAT's technology capabilities. There are no immediate plans to market the game.

In addition to conducting research prior to the trip, students took thousands of photos while they were there, 50 hours of actual footage, did sketching, texture modeling and read a lot of books on The Palio to get a well-rounded perspective. They brought back enough textures for UAT to create a new student texture library. Professor Andrus even gave art lessons and a chance for students to sketch and paint the wide open areas surrounding the Villa where they stayed.

"The trip was magnificent," says Professor Andrus. "We provided students with an exciting cultural experience that combined the study of art with the tradition of a horse race as a means of creating a game. We worked hard—beginning our days at 4 a.m. prior to the race to get into the city before sunrise and capture the predawn aspects of lighting."

It takes the passion of professors and administration at this small, private university to make unique learning opportunities, like this one, possible. This teaching philosophy is what sets UAT apart.

"I think if students are going to have broadened creativity and learn about life, they need this experience," says Professor Andrus, who originally had the idea to form the trip. "They spend three to four years here. I have always tried to give my students a broader outlook on life."

Art history and art education were as big a part of the trip as the horse race itself. Students learned more about drawing, sketching, the history of the game and the rich culture. The intent of the game has been described as having the look and feel of a white knuckle race to the finish while feeling just as alive as the real thing and "as beautiful as a moving painting."

Thanks to UAT's dedication to providing students with richer, real-world experiences, including cultural trips abroad, they are better prepared… in their career path and in life.

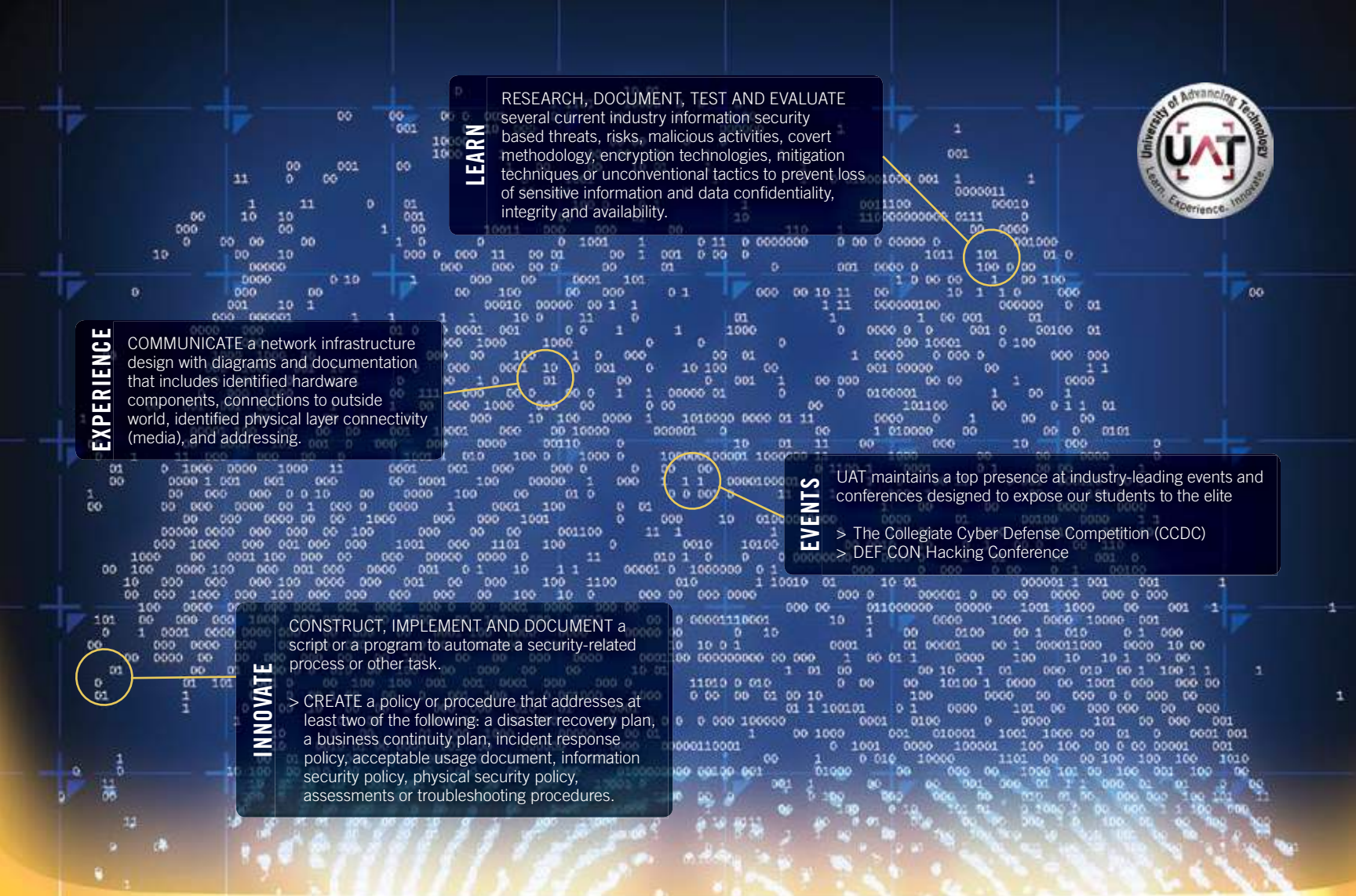
SUPPORT FOR THE PROJECT AND THE TRIP

Because funds were needed to support this scale of project and also trip expenses, both faculty and students pulled together to create fundraising opportunities. Professor Andrus created a painting of The Palio to auction off. Alumnus Tyler Coleman spearheaded a fundraising effort through the Kickstarter program (kickstarter.com) that helps small groups and starter companies raise money. A total of 108 people from all over the country donated, generating more than $10,431.

TEAM PALIO

CHAD ARMSTRONG - Game Designer
ADAM BECK - Asst. Art Lead
ANDREW BORTNIAK - Artist
COLT BUHR - Game Design Lead
MARIO CASTANEDA - Art Lead
TYLER COLEMAN - Marketing
ALEX DINH - Game Programmer
ERICA FACCONE - Digital Videographer
ANTHONY GUILKEY - Artist
BRIAN HARTONG - Game Programmer
CHASE HENDERSON - Animation Artist
JONATHAN JANSMA - Game Scripter
CHRISTOPHER JENNEWEIN - Project Manager
JOSHUA KELLY - Artist
CLAIRE LEIGHTON - Asst. Game Design Lead
LUCAS MATEYKO - Game Programmer Lead
ADAM MOORE - Game Programmer
DEVON O'MARA - Artist
JESSICA ZELLNER - Artist

Go to www.uat.edu/palio



LEARN

RESEARCH, DOCUMENT, TEST AND EVALUATE several current industry information security based threats, risks, malicious activities, covert methodology, encryption technologies, mitigation techniques or unconventional tactics to prevent loss of sensitive information and data confidentiality, integrity and availability.

EXPERIENCE

COMMUNICATE a network infrastructure design with diagrams and documentation that includes identified hardware components, connections to outside world, identified physical layer connectivity (media), and addressing.

EVENTS

UAT maintains a top presence at industry-leading events and conferences designed to expose our students to the elite

> The Collegiate Cyber Defense Competition (CCDC)
> DEF CON Hacking Conference

INNOVATE

CONSTRUCT, IMPLEMENT AND DOCUMENT a script or a program to automate a security-related process or other task.

> CREATE a policy or procedure that addresses at least two of the following: a disaster recovery plan, a business continuity plan, incident response policy, acceptable usage document, information security policy, physical security policy, assessments or troubleshooting procedures.

BECOME ONE OF THE ELITE, BECOME A UAT NETWORK SECURITY GRADUATE

Access to the latest software in UAT's state of the art cyber security lab funded by the Department of Defense
> UAT provides select students a contained environment ideal for testing with segregated VLANS
> FRED Forensic Computers for data acquisition, Keypad Lockers and CISCO Equipment

UAT's Network Security program has an overall employment rate of 89% after graduation. UAT has been designated as a Center for Academic Excellence (CAE) in Information Systems Security Education by the US National Security Agency which means you have access to exclusive scholarships and grants only available to students who attend a university with the designation.

⚠ CLUSTERGEEK WITH CAUTION

LEARN, EXPERIENCE AND INNOVATE WITH THE FOLLOWING DEGREES: Advancing Computer Science, Artificial Life Programming, Digital Media, Digital Video, Enterprise Software Development, Game Art and Animation, Game Design, Game Programming, Human-Computer Interaction, Network Engineering, Network Security, Open Source Technologies, Robotics and Embedded Systems, Serious Game and Simulation, Strategic Technology Development, Technology Forensics, Technology Product Design, Technology Studies, Virtual Modeling and Design, Web and Social Media Technologies

Prepare to Defend!
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Program accreditations, affiliations and certifications:

RED SAND

The stakes are high. A band of terrorists is threatening the sanctity of Mars' ancient ruins... and the entire future of galaxy exploration.

WHO: UAT Digital Video students, and nine actors (including Mark Meer, the voice of Commander Shepard)

WHAT: Red Sand: a *MASS EFFECT* fan film

WHERE: Shot on location at UAT

VIEW: See behind the scenes Making of… footage at www.UAT.edu/makingredsand

CAN THE DAY BE SAVED?

Find out in *Red Sand*, the fan film written and directed by UAT film students as a prequel to the *MASS EFFECT* video game trilogy. The film was written and directed by UAT senior Caleb Evans and includes a crew of fifteen and a cast of nine. Guest star is Mark Meer, best known for his roles in 2007's *MASS EFFECT* and its sequels, 2010's *MASS EFFECT 2* and 2012's *MASS EFFECT 3*, in which he stars as the voice of the male version of the player character, Commander Shepard.

The story involves a team of soldiers that are on a mission to ensure humanity is preserved today… and in the future. Yes, this is the same *MASS EFFECT* that is the wildly popular Xbox video game series loved by millions of gamers worldwide.

Red Sand is an online film, "Although we may do some sort of convention run," says Paul DeNigris, Professor and Program Champion of Digital Video at UAT.

Just how was it decided to create the *Red Sand* prequel? Although many fan films (film or video created by fans and inspired by a film, television program, comic book or similar source) for *MASS EFFECT* are in existence, few, if any, are prequels. *Red Sand* was the brainchild of UAT senior Caleb Evans who hails from Madbury, N.H. "It has been a dream for me," Caleb says. "Thinking back on my school career, I never thought I'd get to make a movie based on a franchise as incredible as *MASS EFFECT*. When the time came to decide what to make a film on, we had played around with several ideas, but as soon as I said *MASS EFFECT,* the entire class was behind the idea. That momentum and excitement snowballed into an extremely dedicated group that made an incredible film."

"There's a big fan base for *MASS EFFECT* among UAT students and worldwide," explains Professor DeNigris. "We wanted to be unique, yet connect to something that our students are passionate about. It's been a tremendous learning experience for all of us."

"UAT's learning environment is what makes our technology mecca a clear differentiator in the higher education arena," says Dave Bolman, UAT Provost. "Learning becomes a hands-on, real-world experience. Individual students and multidisciplinary teams work side-by-side with professors and industry leaders on innovative, complex projects."

"All fans go to YouTube to scrutinize what the other fan films are," says Professor DeNigris. "My students were looking for a way to get UAT out there while participating in some real world learning opportunities."

"There's been so much excitement for this prequel because of so much interest in *MASS EFFECT* that we posted a teaser in February and got 95,000 views," he adds. The film launched on YouTube in October and had almost 150,000 views in one month, well over the expected 100,000 goal.

Mark Meer is a Canadian actor, writer and improv actor based in Edmonton, Alberta. A core company member of the Canadian Comedy award-winning live improvised soap opera *Die-Nasty*, he was the first performer to complete the annual 53-hour long *Die-Nasty Soap-A-Thon* without sleep. He is also a member of Rapid Fire Theatre and a founder of the sketch comedy/improv troupe Gordon's Big Bald Head. He hosts the monthly 'Euro-style' improv variety show *Oh Susanna!* and is a performer and writer on both CBC Radio's sketch comedy program *The Irrelevant Show* and APTN's *CAUTION: May Contain Nuts.* His voice is featured in a number of games from BioWare Corp. including *Baldur's Gate II: Shadows of Amn, Baldur's Gate II: Throne of Bhaal, Jade Empire, Neverwinter Nights: Hordes of the Underdark, Dragon Age: Origins, Dragon Age: Origins – Awakening* and *Dragon Age II.*

So, how did UAT get a star as big as Mark to participate? Professor DeNigris asked him. He sent him a cold email, to which Mark responded enthusiastically. "Mark was very supportive of the project from the get go," explains Professor DeNigris. "He read the script and saw the strength of it, and that's what hooked him. And then he saw *Fallout* and a few of the other UAT films and was even more impressed."

Professor DeNigris wanted to take more of a supervisory position as producer in this UAT film project to give students more of the hands-on work. He co-produced the film with student Samantha Hammond. "Our job was to make sure Caleb had all he needed to tell his story," says Professor DeNigris.

Here's a fun piece of trivia: Professor DeNigris wasn't a fan of the series when the project began, but he is now. The power of the script and the passion of the students converted him into a fan.

"We played the games in class to get a feel for the game, which really is just a tremendous piece of video game art. It's been great to contribute our own to the series and have Mark embrace it."

Watch the complete film at **www.UAT.edu/redsand**

CREW

Director
Caleb Evans - Class of 2012

Producer
Paul DeNigris

Producer, Compositor
Samantha Hammond - Class of 2012

Director of Photography, Compositor, Body Double
Jared Oppie - Class of 2012

Art Director
Ariel Navarrete - Class of 2012

1st Assistant Director, Lead Prop Design, Compositor
Jamil M. Abubakar - Class of 2013

Editor
Paul Rosario - Class of 2013

Key Grip, 3D Modeler, Compositor, VFX Coordinator
Ib Gillett - Class of 2013

Make-up Special Effects artist, compositor, a Marauder
Alyssa Mann - Class of 2012

Sound recorder and designer
Erica Faccone - Class of 2012

1st Assistant Camera, Compositor
Dylan White - Class of 2013

2nd Assistant Camera, Compositor
Annie Winn - Class of 2012

Grip, Compositor
Neil Keith Sparks - Class of 2014

Grip, Compositor
Tyler Bitterolf - Class of 2013

3D Artist , Compositor
Alicia Preston - Class of 2012

3D Artist, Compositor, Grip
Zachary Robinson - Class of 2010

CG Modeler
Elissa Clare - Class of 2011

Technical Artist
Dennis Porte - Class of 2012

Concept Artist
Sayla Barnes - Class of 2013

Senior Compositor, Grip
Trevor Spotted Eagle - Class of 2012

CG Modeler
Tyler Felton - Class of 2013

CG Modeler
Kyle Jenkins - Class of 2010

Digital Matte Painter, Matchmover
Evan Sprague - Class of 2009

CAST

Mark Meer
as "Colonel Jon Grissom"

Ayman Samman
as "Dr. Averroes"

Amy Searcy
as "Colonel Lily Sandhurst"

Greg Bronson
as "Red Sand Leader"

Shane Dean
as "Jenkins"

Jeffery Lamar
as "Hido"

Will Leon
as "Erickson"

Jeff Houkal
as "Lee"

Cavin Gray
as "Dr. Jackson"

did you know...

Red Sand received over 100,000 views in its debut week on YouTube. Watch behind the scenes extras at www.UAT.edu/RedSandExtras

DNA data storage

When you think of storage, you envision your closet or your computer. But, in an August 2012 edition of *Computing*, a revolutionary advancement in data storage was reported, of the extreme genetic kind.

A total of 5.5 petabits of data—around 700 terabytes (one terabyte equals 1,024 gigabytes of data storage)—has successfully been stored in a single gram of DNA. Let's put this in perspective. While it's hard to fathom the extreme quantity, this totally blows the previous density storage record out of the water—1,000 times.

As reported by Sebastian Anthony in the August 2012 edition of *Computing*, "One gram of DNA can store 700 terabytes of data. That's 14,000 50-gigabyte Blu-ray discs… in a droplet of DNA that would fit on the tip of your pinky. To store the same kind of data on hard drives—the densest storage medium in use today—you'd need 233 3TB drives, weighing a total of 151 kilos.

"The work, carried out by bioengineer George Church and geneticist Sri Kosuri, basically treats DNA as just another digital storage device," according to Anthony. "Instead of binary data being encoded as magnetic regions on a hard drive platter, strands of DNA that store 96 bits are synthesized, with each of the bases (TGAC) representing a binary value (T and G = 1, A and C = 0)."

Why does DNA, taken from the human body, make a good storage medium?

1) It's incredibly dense (you can store one bit per base, and a base is only a few atoms large).

2) It's volumetric (beaker) rather than planar (hard disk).

3) It's incredibly stable—where other bleeding-edge storage mediums need to be kept in sub-zero vacuums, DNA can survive for hundreds of thousands of years in a box in your garage.

With biological storage at these mind bending levels, we can look toward a future in which recording everything is possible for humankind. Can you imagine warehouses full of hard drives, which could fail at any time, with the entirety of human knowledge—every book, uttered word and experience? It's impossible now, yet the future holds this as a very real possibility with the new potential of DNA storage.

DNA storage in living cells can only happen for a short time. Maybe someday it will be possible to take the data with you everywhere, storing data in your skin… a secure method indeed.

Storing DNA for the future is a reality today for anyone. Services provide hand held storage vessels for those who want to keep DNA of themselves or a loved one at home. Your DNA gives future generations all there is to know about you, helping to preserve family heritage and making important life choices.

did you know...

Several UAT students participate in internship programs with industry leading companies, as well as on-campus, while earning their degree. Learn about their experiences at www.UAT.edu/internships.

Digital storage takes a biological form: in DNA.

johnny on the spot
Network security at Bechtel

NAME: Johnny Wachter
WHAT: Security Analyst, Bechtel
ALUMNUS: Class of 2012
MAJOR: Network Security

Sometimes you have to travel halfway around the world to begin your journey. Alumnus Johnny Wachter (summer 2012 graduate) began his exciting journey in Network Security after arriving to the U.S. from Romania.

He's now a Security Analyst, and working for arguably the biggest construction engineering firm in the world, Bechtel Corporation in Glendale, Ariz.

His journey began in 2003 when he relocated to a new home and family in Neversink, N.Y. It was when he was taking courses at local colleges that he began to research other technical universities online and found UAT. He arrived at UAT in 2010, and graduated with his Bachelor of Science in Network Security. When you talk with Johnny, it's hard to detect an accent of any kind. His English is better than many American natives. But when you ask him about it, he grins and begins speaking his native language with ease, as if he just arrived last week.

Even before he graduated, Johnny began interning as a Security Analyst at Dignity Health in 2011. While there, his duties included managing and supporting McAfee ePolicy Orchestrator, ensuring that Database Servers and Distributed Repositories were functioning properly, and that Dignity Health assets were up-to-date on Exclusion Policies and Antivirus Signatures. His internship soon turned into a contract.

Experience, a solid resume and a LinkedIn profile served as Johnny's springboard for his job hunt. It wasn't long before he interviewed at Bechtel and got the Security Analyst position, while still consulting with Dignity Health a little while longer.

UAT graduates are highly sought after because of UAT's designation as a Center for Academic Excellence in Information Systems Security Education by the U.S. National Security Agency. Recognized by industry and government alike, UAT's Bachelor of Science in Network Security (NTS)—over a decade in development—is one of the most prestigious programs in the country.

Johnny works in Bechtel's Security Operations Center, where at any given time you're juggling 10-20 different things all at once. "A lot of stuff I do involves identifying threats on the

network and remediating them, including forensics analysis on systems and malware reverse engineering."

Among his job responsibilities, Johnny:

> Uses SIEM technology in order to identify present or potential threats on the network
> Performs Host and Network Forensic Analysis in response to security incidents
> Automates processes through the use of Python, Node.js, Perl, and Bash Programming
> Investigates malware in a lab environment
> Does research to continually implement the most innovative methods of securing the network

Best of all, Johnny gets to play with some of the tools attackers use and set up an entire scenario to replicate all that a hacker can do.

"If I had to choose a company to stay with, this is certainly one of them," says Johnny. "Bechtel values their employees and treats them very well."

So, how did being at UAT help him get to where he is today? He credits his tremendous support system of professors, parents and fiancé. "I got here thanks to my driven Father, my loving Mother and my beautiful and supportive wife-to-be."

This was especially important when Johnny contracted Valley fever, pneumonia and "mono" all at once. It was their tremendous support that made the difference at a precarious time in his life, along with the flexibility he received from UAT's professors. He had a lot of make-up work, and mixed his classroom semesters with some online. He finally ended up taking everything online.

"If it weren't for the professors at UAT, I wouldn't be halfway where I am today," says Johnny. "UAT has really great professors who care about their students. Take Professor Shelley Keating and Professor Al Kelly, for example. They're open to helping students with real world situations. Professor Keating helped me get an internship at Dignity Health."

Johnny believes there's nothing like UAT's integration of technology. "Students won't ever find a Cyber Security Cave like this anywhere else [a separate room that replicates the intricacies of a real world Network Security environment]," he says. "UAT's education is way above par."

In addition to getting the job at Bechtel, it was exciting for Johnny when he later learned two of his UAT friends would also join the team—alumni Andrew Ryman and Charles Neitzel.

Johnny's goals are to earn several Network Security and forensic related certifications through Bechtel, a graduate degree, and advance in the organization to a management position.

Johnny's advice for other students:

> The Network Security industry is looking for motivated individuals who demonstrate passion, drive and the desire to excel.

> Get a foot in the door by taking the opportunity to work while going to school. The combination is powerful and hardwires what you're learning.

> Employers want to see passion and hunger. The interview process is more than having the qualifications on paper. Johnny had less than a year of experience when he interviewed but was willing to push harder and go the extra mile to demonstrate his commitment to achieve and produce results. He got the position.

> If you push hard and believe in yourself, you can do anything.

> It's not just going to an interview and answering questions.

To learn more about UAT's Cyber Security programs, go to www.uat.edu/majors

Career advice from National Cyber Security

From National Cyber Security's website, the following are excerpts of advice from the Information Systems Audit and Control Association's Young Professionals Subcommittee (YPS) to help maximize chances of being hired upon graduation. When asking members of YPS what it takes, their primary response was a resounding, "Network!"

> **Stand out in class and develop good relationships with your professors.**

> **Form study groups while in class and keep in touch with classmates after your course is over.** Facebook and LinkedIn are allowing people to remain more connected than ever.

> **Join an association.** Attend chapter events where you'll meet and mingle with people in your field and in your area, and, most importantly, volunteer. Associations also offer the benefit of keeping you up to date on your industry.

> **Visit [UAT's] career center frequently.** The staff will help you develop a strong résumé, find internship and career opportunities, and practice interviewing. Associations also offer the benefit of keeping you up to date on your industry.

> **Make sure you have a well-rounded background.**

www.uat.edu/ncsadvice

Home sweet robo-home.

Robotics are not just the thing of "sci fi" movies, they're becoming a greater part of our everyday lives—at home. Personal robot sales will pass $15 billion by 2015, predicts ABI Research.

UAT Robotics and Embedded Systems students are part of the future, today. Graduates move to the head of the class as game changers that lead the way in an exciting new world of home automation fueled by Bluetooth technology.

Life before Bluetooth is hard to imagine. Today's cell phones, tablets, PCs and TVs all have it. What's even more awesome is the fact that these devices can not only talk to each other, they can also communicate with Bluetooth enabled appliances, heating and cooling systems, and other devices in the smart home. Imagine a home theater that takes care of lights, picture and sound with one touch. Okay, take it one step further… Your family robot will do chores for you. If you're not sure you have food in the frig, smart phone technology will help check your supply and order more from the grocery store.

"Want to check the temperature of your refrigerator, turn on the oven, or start the laundry? Well, there's an app for that," according to an online article by Orhan-Cileli, Yoshikazu Tsuno in *Future Technology 500*. "This is just the beginning because there will be more apps created to interact with your future home robots to tell them to put food in the oven, clothes in the laundry, feed the cat and clean the bathroom. Future home entertainment systems will be out of this world. By combining future augmented reality, virtual reality and mediated reality movies and television will be more interactive than ever before. Imagine in your living room playing a future version of Wii golf or tennis with your virtual friends while watching breaking news or the latest 3D movie."

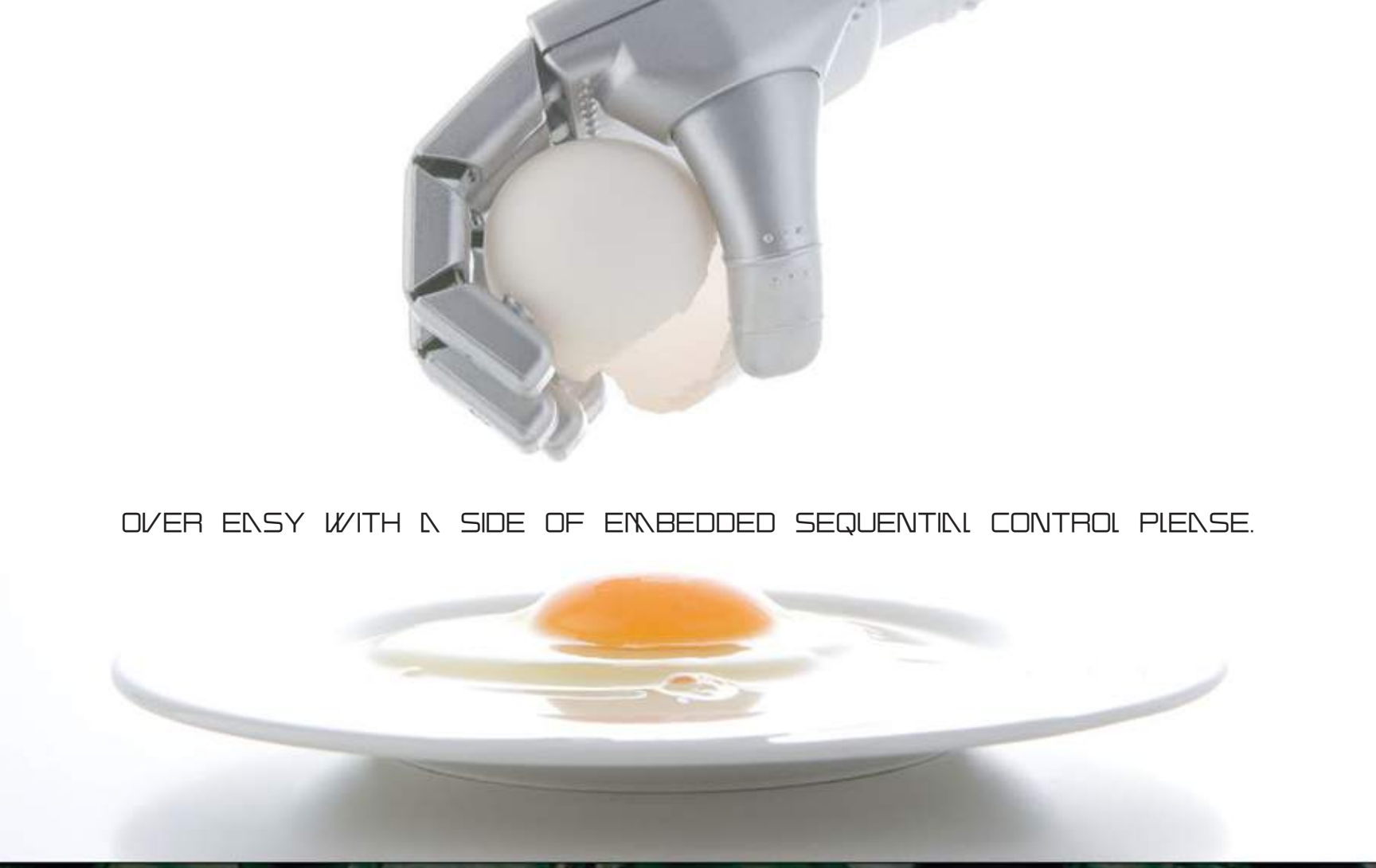
"Our daily interactions and technology usage are built upon the foundation of embedded systems," says Professor Ryan Meuth at UAT. "With an emphasis in autonomous robotic systems, our Robotics and Embedded Systems major provides students the engineering foundation for the design, implementation and analysis of embedded systems. Building upon the foundation of software engineering, a RES degree from UAT can span mechanical design, controls, electronics, digital logic design, embedded programming, machine vision, adaptive algorithm development and design of autonomous robotic systems."

Future UAT RES students, your time is now. Within 10 years, experts predict that general-purpose robots—costing $25,000 to $30,000 per unit—will perform household chores while consumers are at work or serve as butlers at cocktail parties.

See what the Robotics students are up to right now.
Go to www.UAT.edu/resblog

As listed in the *USA Today* article Robots Are Marching Into Homes, the following robotics innovations are occurring:

- Bossa Nova Robotics announced Ballbot, a platform for developers to create personal robots that interact with people. Conceivably, this could lead to something like a robot maid modeled after The Jetsons' Rosie for less than $5,000.
- Romotive introduced a new version of Romo, its $150 smartphone robot, with wheels and camera, that uses the iPhone as its brain and operates like a remote-controlled car. It is described by CEO Keller Rinaudo as "Skype on wheels."
- iRobot last month snapped up Evolution Robotics for $74 million to round out its product line of Roomba floor cleaners.
- ABB is demonstrating a robot that interprets dreams through paintings. The robot is on display in the lobby of a Paris hotel.
- A recent conference on robotics in Silicon Valley scheduled Gangnam-style dancing bots and a pair of life-size humanoid robots as greeters.



OVER EASY WITH A SIDE OF EMBEDDED SEQUENTIAL CONTROL PLEASE.

UAT's Robotics offerings build a solid foundation of understanding to expand upon deep and emerging areas of our technology future. UAT's Robotics Lab provides your own space to create and innovate in an environment where students can work hands-on with innovative technologies, using the latest hardware to create and perform self-directed inquiry

LEARN

> DESCRIBE, IMPLEMENT AND ANALYZE fundamental data structures including lists, trees, hash tables, graphs, and algorithms including sorting and searching.

> DESIGN AND IMPLEMENT software subsystems for autonomous mobile robots, including power, motor, communication, feedback and control subsystems.

INNOVATE

> BUILD, CREATE AND TEST robotics utilizing industry standard software and engineering processes in UAT's Hardware Lab.

> REVOLUTIONIZE AND DEVELOP new robotic methods of human/machine interaction using the principles of physical computing.

EXPERIENCE

> ATTEND, PARTICIPATE AND NETWORK at the industry leading conferences.

> SURROUND YOURSELF in the subculture of advancing technology. Experience inspirational educational leaders like Dr. Meuth and participate in impromptu robot wars and university hosted robotics competitions with team UAT.

uat.edu/robotics

University of Advancing Technology
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Learn. Experience. Innovate.

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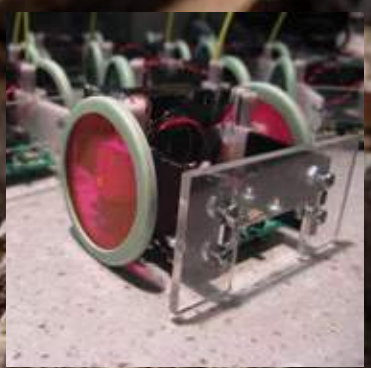
Human Computer Interaction > Network Engineering > Network Security > Open Source Technologies > Robotics and Embedded Systems > Serious Games and Simulation > Strategic Technology Development
Technology Forensics > Technology Product Design > Technology Studies > Virtual Modeling and Design > Web and Social Media Technologies

PLEASE SEE WWW.UAT.EDU/FASTFACTS FOR THE LATEST INFORMATION ABOUT DEGREE PROGRAM PERFORMANCE, PLACEMENT AND COSTS.

AUTONOMY vehicle



Into the Danger Zone:

Kasey Norman's Affordable Recon Bot

Kasey NORMAN

Junior Kasey Norman's Semi-Autonomous Vehicle with Intelligence

When you need to enter a danger zone, why go yourself when you can send a robot? Specifically, a semi-autonomous vehicle with intelligence in a base control unit. That's the name of Kasey's Student Innovation Project (SIP). He's a Robotics and Embedded Systems major who hails from Wichita, Kan.

He made a semi intelligent "track bot" that has a rover design, with tracks for wheels. The bot is linked to a computer base control unit that receives data from the bot and processes it to determine and navigate location.

The intelligence is shared with the base control unit. Instead of having all of the intelligence on the robot which makes it much more expensive, the base control unit monitors, navigates and maneuvers one or more bots. Outside, the range between the base station transmitter and the robot is two miles. Indoors, the range fluctuates depending on interference, up to a mile.

This bot started out as a kit Kasey bought but never did anything with until UAT helped him realize the innovation that building it will bring.

"My hope is to get this bot to where it needs to be, able to self navigate obstacles with its current sensor package and do even more once I have it finished," says Kasey.

Do more, indeed! Kasey has set his sights on applying this project to make a difference in multiple ways:

1 Solve a real world problem to create terrestrial unmanned vehicles that perform reconnaissance—at a reasonable cost. Kasey wants to prove that police, fire and the DoD can produce and use something value-priced yet effective at entering risky environments and performing potentially life threatening tasks. The more cost effective production is, the more these bots can be made available. With his design, Kasey's figuring his project can be produced at a cost of a few thousand dollars vs. what currently is on the market at costs upwards of hundreds of thousands of dollars.

2 Provide a learning platform to schools to help teach programming to elementary and middle school students.

Kasey believes that the earlier you expose students to technology, the better. He should know, he was raised in a technology environment, with a father and grandfather who were "electronic tinkerists." He's always thinking about how he can help students learn and enjoys giving back. While he's going to school, he volunteers as a mentor at Coronado High School in Scottsdale (see sidebar). And his giving back doesn't begin and end there. Kasey spent four years serving his country as a Marine.

Kasey's robot includes a motherboard, battery, touch screen database to scan the area, basic navigation and the ability to map terrain and the environment. XBEE is built inside of it for communication with the base station and with other robots. The robot has built-in sustainability to keep from self destructing if disconnected from the base station computer.

Although the base station is able to handle multiple bots, Kasey is designing his project so when you have just one robot, it can be programmed from any computer. Going this route, you need a separate XBEE radio for about $30 or

NAME: Kasey Norman
WHAT: Semi-Intelligent "track bot" with a rover design and tracks for wheels
MAJOR: Robotics and Embedded Systems

$40. He's figuring the bots themselves will cost in the $500 range with the battery pack. Laptop software for programming the robots is actually free.

Kasey loves the tight knit community at UAT. "It's more engaging here, and I get to practice the theory I just learned in a hands-on environment which is a good fit for me," he says.

He also gets to build his portfolio. He relays the story of how a recent interview went for him when he was seeking a part time job doing electrical work: "The HR person was amazed at my portfolio that included engineering examples plus photographs and drawings of the track bots." He got the job.

Kasey wants to continue on to complete his master's and hopes to enter the medical robotics field—robotics that can assist the elderly maintain independence. He also wants to work on the da Vinci robotic surgical system.

He has personal reasons for wanting to apply his passion to the medical field: his mother is a cardiac surgery nurse and he has Multiple Sclerosis.

"My body is attacking my own nerves, which will eventually impact mobility," he says. "My degrees will give me the ability to design devices that help me continue to walk."

HIGH SCHOOL MENTORSHIP PROGRAM

Some people think attending classes is enough when they go to college. At UAT, classes are just the beginning.

Through UAT, junior Kasey Norman was told by Professor Ryan Meuth that volunteer mentors in a robotics after-school program were needed at Coronado High School in Scottsdale. Kasey was quick to volunteer last spring, excited at the chance to help eager students learn more about robotics and embedded systems.

"The Robotnics" team included two Coronado teachers, 15 students and Kasey. He helped students design a robot that would shoot basketballs into a hoop for a competition sponsored by USFIRST.org, which was conducted in March 2012.

"The competition was really intense," says Kasey. "We had six weeks to design, build and test a robot in a sports arena style competition – taking into consideration the size specifications and making sure it accelerated just enough."

Although the Coronado team didn't make it into the finals, students learned a lot, thanks in part to Kasey's participation and all he has gleaned from UAT.

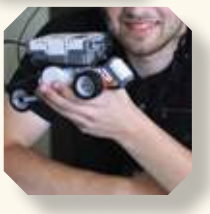
Solar Scrimmage

Ryan Carmain

let the innovation begin

Real world experience at the Avnet Tech Games

Robot Build



When Professor Ryan Meuth sent out an email asking his Robotics and Embedded Systems students who wanted to participate in the 2012 Avnet Tech Games on April 14, 2012, hosted by UAT, he got several responses. Among them were Ryan Carmain (graduated 2012) and Kasey Norman, junior.

The Avnet Tech Games, which include both Arizona Onsite and Spring Virtual events (nationwide), is an annual college technology competition that helps students apply what they learn to real-world scenarios and compete for scholarships. With seven separate events, the competition is open to all Arizona colleges and universities. Students are required to work in teams to test their knowledge, creativity, decision-making, problem-solving and technical skills.

"Conducted for the third year on our campus, the Avnet Tech Games shows college students some of the challenges waiting for them in the real world to better prepare them for the job market," says Professor Meuth. "UAT is the best location for this competition because of our wide range of resources."

A native of Cocomo, Ind., Ryan won first place in the Solar Scrimmage with his solar powered water pump and was awarded a $1,000 scholarship. The green energy water pump was designed, built and tested to present the best overall solar-powered green energy water pumping system.

He and one other entry were provided an A-frame structure and two buckets along with a box of parts required to build the solar system. The goal was to create within four hours.

The system had to be equipped with built-in leveling designed to automatically cut power once a certain water level was reached. Ryan's solar water pump stood four-feet high and filled a five gallon bucket. Extra points were given for making sure it worked. His was similar to what is being used worldwide to provide clean water to people without electricity.

"Ryan had a really unique approach to doing electronics, and getting points for making the system work in the most elegant way," says Professor Meuth. "His design was well thought out, and he had very creative solutions to some of the challenges he encountered."

"Overall, the classes I took really helped me prepare me for the competition," says Ryan. "My three circuit design classes in particular were helpful. Professor Meuth was one of my favorite professors."

This was the second Avnet Tech Games competition for Ryan and he definitely recommends it to others. It's usually a tough challenge that requires preparation, and it really puts your knowledge to the test.

Kasey and his team were finalists in the Build and Tune the Fastest Computer competition. The team was tasked with building, troubleshooting and tuning a PC the fastest. Proper assembly was critical not only to make it work—fast—but also to make it look professional. With a time allotment of 60 minutes, he and his team built a computer, fine tuned it and maximized its speed—all in a total of 18 minutes and 27 seconds. Parts included a computer case, motherboard, processor, ram, CD-Rom, power supply and hard drive.

"We knew we'd be building computers, but we didn't know what type, what parts until just before the competition," says Kasey, who hails from Witchita, Kas.

"Kasey and his team worked extremely hard and performed very well in the Build the Fastest Computer challenge," says Professor Meuth. "The stellar performance of both UAT teams at the Avnet Tech Games shows the impressive passion and dedication of our students. We're extremely proud of them."

"The take away from this competition is that you learn to problem solve, work within time constraints and work better with a team," says Kasey. "We all knew what we needed to do, because we took the time in advance to really understand our team dynamics and what our roles were."

The annual competition at UAT draws nearly 190 students in Arizona and universities throughout the country. A panel of judges including technology firm executives, engineers and technical experts selected the winners based on the students' ability to meet the technical requirements of the task, apply innovative approaches to the solution and demonstrate professional skills. A total of 75 teams of students competed in the onsite and virtual Avnet Tech Games, including 11 Arizona universities: Arizona State University, ITT Technical Institute, six Maricopa County Community Colleges, Northern Arizona University, University of Advancing Technology and University of Arizona.

Fastest Build

Kasey Norman, Alex Bowden, David Adams

Coronado High School

L to R Back Row: Chris Armour, KJ Reece, John Hagerman, Michael Hart, Instructor: Ralf Hunt, L to R Front Row: Nikelus Placencio, Sarah Hagerman, Jack Mason

Cable Patch

Davis Adams, Alex Bowden

Check out more at **www.uat.edu/techgames**

Avnet, Inc., a Fortune 500 Company, is one of the largest distributors of electronic components, computer products and embedded technology serving customers in more than 70 countries worldwide.

ZOMBIE ZOO:

GAME DESIGN HIGH SCORE TO JON HAHN

NAME: Jon Hahn

GAME: Killing Floor

WHAT: A level designed for UAT students modeled after the layout of the school

MAJOR: Game Design

KILLING FLOOR

Do you have a zombie infestation survival plan? You'll need one. Zombies have invaded UAT in the new game level student Jon Hahn's developed in the wildly popular Killing Floor video game played by people worldwide.

A junior majoring in Game Design, Jon has always loved everything action adventure. Jon's evolution of learning at UAT brought him to the point where he created a successful game level that is now available through Steam.

Shortly after he first arrived at UAT, Jon decided to try creating an early type of level design from the *Left 4 Dead* video game for a class assignment in David Wessman's class.

"The level was wonky, so I scrapped the project," explains Jon, who hails from Roselle Park, N.J. After he gained more hands-on experience at UAT, he decided to try again. This time he bought *Killing Floor* that also included an editor version, and recreated the original version to become his own UAT zombie level.

That's all too fitting because UAT and zombie apocalypse themes have a long storied history with hundreds of passionate gamers and elite developers coming before him.

Jon walked around campus in every nook and cranny, taking about 200 photos so he could create a detailed campus map and build a zombie killing level design. There's even a store in the game level's Bindery where you can purchase gear upgrades.

His right hand man was Dylan White, a sophomore majoring in Digital Video who offered him help with play testing and gave advice on how to improve lighting issues.

"The story for the game *Killing Floor* is basically there are mutated zombie creatures, and the players must fight/destroy/kill these creatures to survive," says Jon. "As for my level, I knew that there are a lot of zombie fans at UAT, so I figured that creating UAT in this game level would be really cool. Players are trapped inside the UAT building and must survive the zombie horde."

Although the project is technically complete, I am still also adding more to the level and fixing it up. The level is fully playable by anyone who owns the game, and can download the map from Steam, or any other website that has the download for the level. Jon is in the process of contacting other websites who would be willing to host his level to be played online, and download. The game can be bought/downloaded at (http://store.steampowered.com/)

It didn't take long for news to travel throughout much of UAT about the game level. One day in the Commons, six UAT students just happened to be playing it when Provost Dave Bolman stopped by and saw Jon's game level being played. He later wanted to talk with him personally about the good job he did. Jon admitted that felt good.

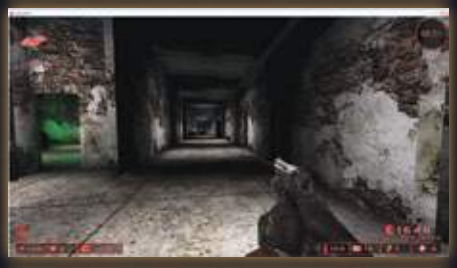
What Jon likes best about UAT are the instructors and has appreciated Game Design Professor David Wessman's guidance and support.

"Jon is one of those students that make teaching fun," says Professor David Wessman. "He's high-energy, hard-working and always eager to contribute. I've observed his growth over many semesters and it's been a joy to watch him develop his creative and professional skills, not to mention some very good leadership skills. I'm always impressed when someone steps up to take on added responsibility out of a sense of duty rather than feeding their ego. The fact that Jon has accomplished so much working independently on his Killing Floor level while also being a major contributor to more than one of my larger team projects indicates he has a great future in game development!"

"Since I was very little, I just really wanted to find the best school," says Jon. "UAT stood out during a career fair I attended. I was so impressed that UAT traveled across the country and displayed such enthusiasm, that it made me really want to attend the Fly-In G33k program."

See a teaser of the game at www.uat.edu/killingfloor

Download the game.



Trigger happy: john KOOP produces new programming for Military Channel

Few things can top the thrill UAT alumnus John Koop experienced when he took his first ride in a helicopter during filming of a shooter scene involving the fastest military machine gun. If you haven't already guessed, it's the Dillon Aero.

This scene will be included in an episode for The Life Alone TV series called *A.L.O.N.E.*, on the *Military Channel.* The segment was produced by the studio John founded, Arizona Virtual Studios. He is co-owner and COO.

John calls that experience "crazy, because we were very high up and I was dangling from a cable while the helicopter made 45 degree turns."

This is just one of the many exciting projects he and his team take on that has helped his company grow into one of the leading 3D animation and video production companies in the country.

In addition to his business, John's a physical therapist, electrical engineer and entrepreneur. Among his credits, he has created special effects for the full feature movie Kingdom under the Sea. John has created many 3D animated graphics and designs for a number of international magazines, worked on television shows such as *Good Morning America* and the *Travel Channel* and produced for original productions on *The Discovery Channel, The Military Channel* and *Wealth TV.*

John's professional journey began in his native home in Holland, The Netherlands. He studied physical therapy in Germany and Belgium and worked for five years before he decided to relocate to the United States. After working in the field for two more years in Florida, he realized there was something else calling him. He'd always had a keen interest in drawing, traditional art and 3D animation. After some soul searching and watching the movie Matrix, he discovered the extent of his true passion for 3D animation and video production.

John found UAT on the internet and moved to Tempe, Ariz., in 1999. Among all the classes he took toward his Bachelor of Arts in Multimedia (represented today in Digital Video Production, Game Art and Animation and Digital Media), with an emphasis in Digital Animation, he feels especially fortunate to have had the opportunity to include traditional art classes and life drawing to the mix. Now he is able to offer drawing, story boarding and concept art services to his clients. They complete the broad range of services Arizona Virtual Studios provides.

It didn't take John long to realize he wanted to be his own boss and start his own company, so he did—as a freshman. No, that's not a typo. In 2000, John's company was born—unique from day one because of his niche specialization.

He worked out of his home with a video camera, a computer and a few people to help him.

He found his first client in the phone book—Quantum Controls, a company out of Florida that produces hydraulics for yachts. They needed a 3D animation project for a boat trade show.

He remembers how much UAT tailored his education to his needs during the start up of his business. That really made a difference. At the end of first year, UAT made it possible for him to work on the project and attend school from home. John even asked his SIP teacher at the time if his real world 3D animation project would apply to the class SIP project. It was approved.

"John was a part of a class that was at the beginning point of thinking of 3D animation, digital graphics and post production as a tool kit to tell stories and convey emotions," says Provost Dave Bolman. "What has been so exciting about John and his contemporaries is that they led the way to the next level perspective where these computer tools were not the endpoint, but the means of conveying images and stories more effectively and efficiently."

John graduated in 2002 Suma Cum Laude.

After weathering three different economic downturns since his business opened, Arizona Virtual Studios went from an office in a two-bedroom apartment and then a four bedroom home to his recent expansion in a 8,000 square foot office space with 14 people and services that now include 3D animation, video production, 3D production, editing, large wide screen and green screen technology, and website development. He has a business partner, too, and a client roster that is growing. Current clients include Boston Scientific, Boeing and Continental.

What does John see in his future 10 years down the road? "We'd like to have a film park," he says, with a big lot and a building with a larger green screen for in-house production of network television series and movies. With the economy steadily improving, more opportunities are developing for John to grow his business.

Since Arizona Virtual Studios neighbors California, he also hopes to attract new business from the entertainment industry. His company already collaborates with the Arizona Film Commission and Arizona Production Association to explore filming opportunities because Arizona is an attractive option for labor, environmental and cultural diversity, climate, cost efficiency and sheer beauty. It's all right here.

While there is no normal or routine day at the office, John's day can include new client meetings, project management, client development, client relations, team meetings, working together on projects, product development, creating animation for television series, and coordinating a lot of green screen rentals. Some days, they are totally focused as a team to produce a commercial, a photo shoot, or develop a website.

"Our meetings are really relaxed—not rigid but rather creative and playful. If you have people only working in a cubicle, the fun can disappear… quickly."

"It's important to work hard, but you want to have fun too."

NAME: John Koop

WHAT: Owner and COO of Arizona Virtual Studios

ALUMNUS: Class of 2002

MAJOR: Video Production

See John's work at www.uat.edu/johnkoop

John's advice for students

> Begin early to build your portfolio. Put in the extra work needed to turn your school projects into impressive portfolio pieces. It's all about your demo reel.

> Passion is so important. Your passion will help get you through the many long hours and extra work necessary to hone your skills and be successful in your career path.

> Build your connections starting today, even before college if possible. At UAT, you never know who you will meet that might be the connection to something bigger. Create connections with people who can provide a reference and recommend you for growth opportunities that include that all important job. UAT's faculty, staff and students are well connected and often are the link to internships and job opportunities.

> Work with people in class who excel in 3D animation and video production. Partner with them to learn as much as you can, not only from the instructor and the class but also the students themselves. John always made sure he was sitting next to the better students because those competitive juices set in. He naturally wanted to work harder and compete.

TECH moment

Commencement audience does the digital wave

How many college graduates can say they navigated an airplane and did the Wave during their commencement ceremonies?

About 200 UAT Spring 2012 graduates.

Beyond speeches and receiving their diplomas for academic achievement that prepares them to be tomorrow's technology innovators, graduates experienced Tech Moment, a UAT commencement tradition.

Tech Moment is a unique technology project developed by a team of UAT students. This year's project involved graduates wearing LED badges that prompted them to do the Wave and navigate Lite Flight, a crowd-controlled video game using computer vision software which tracked the badges and allowed graduates to collectively control a flight simulator.

"Students begin their journey at UAT with such excitement that we wanted to end their time here with that same excitement for technology innovation while honoring graduates for what they have done and what they can do," says David Bolman, Provost. "Each year's project is different and always a big surprise to the audience."

What's even more impressive is that the team of six students and three faculty members built everything from scratch. They represented four degree program specialties including Robotics and Embedded Systems, Advancing Computer Science, Game Design and Game Programming.

Team members included Professor Ryan Meuth (Robotics and Artificial Intelligence), Professor James Justin (Game Programming) Professor Phill Miller (Computer Programming), and students Kasey Norman, Colt Buhr, Lester Dominguez, Pralie Dutzel, Jacob Hoffman and Stacy Layton.

"Rather than the instructors telling the students what to do, everyone pitched in, worked hard and collaborated like they would for any academic research project," says Professor Meuth.

"The firmware (program running on the microcontroller on each badge) was really challenging, because we had to ensure the master computer could communicate reliably with the badges at a range of approximately 100 feet using pulses of infrared light, similar to what your TV remote control uses to communicate with your television," he explains. "The messages sent to the badges commanded them to change color or turn their LEDs on or off. Since we were using microcontrollers donated by Microchip Technology, we used their new software development environment, MPLAB X, to develop and debug the firmware."

The Wave was introduced first to the audience. Graduates were asked to join in when their badges lit up. A dotted ripple of lights moved from one end of the room to the other in a synchronized pattern.

Lite Flight followed. As a webcam tracked their movements, graduates worked together to navigate, with their bodies, a virtual airplane on a screen. They swayed left and right to steer, snag virtual coins and avoid crashing into the canyon wall or river below.

The game was written using the Unity game engine, which is very different than Python, so the two programs communicated over a network connection.

"Since I was in the crowd, it was fun watching all the students lean left and right, hearing random voices go 'LEFT!' and the laughter when the plane ran into a wall," says Colt Buhr, a level designer on the team from Lincoln, Neb., who also graduated that day. He created the game's river canyon level.

Professor Meuth believes the resources and people make the difference at UAT, where unique projects are created every day.

"We attract a high caliber of students like no other. Everyone is so talented and passionate," he says.

When you have access to a 3D Printer, laser cutter, hardware lab, innovation studio, electronic classrooms where you can quickly prototype and test something, mechanical and electronic design resources, and more, the sky's the limit!

Tech Moment's innovation and collaboration reflect the university's Synchronic Learning Model that provides the framework for a vibrant, multifaceted academic environment where students are challenged to explore new and traditional concepts, and to

independently and collaboratively practice what they learn in real-world situations to achieve their full potential. Often that means learning by playing cool games and developing them, which challenges their minds to achieve more than they would have otherwise.

Every student on the team gained real-world experience by honing communication skills, working under time constraints and collaborating with an interdisciplinary team. They all learn at least one thing new and are better prepared for the job market.

"I learned that Unity 3D doesn't like it when you have Pro material in the Free version," says Colt. "It tends to vomit all over itself and cause a LOT of problems. However, it was easily fixed but lesson learned on that one."

"I knew this one would make a decent portfolio piece despite having a very short timeline for completion," says team member Stacy Layton, a junior from Soldotna, Alaska, who wrote programming code for this game using Boo (a program language similar to Python). She also created the plane itself and the coins rotating in the air.

It's very possible Tech Moment is the first of its kind in Arizona. Because of its innovation, this year's project also is educating others beyond UAT at tech fairs and conventions, already appearing last spring at the Maker Fair in San Diego and at Phoenix Comicon.

WATCH A VIDEO OF THE TECH MOMENT AT WWW.UAT.EDU/TECHMOMENT

3D printing FNB

Students take the lead in what will become a household word—3D, or fabrication printing.

did you know...

UAT's 3D printer pumps out up to 50 student projects a semester. See projects featured in previous issues at www.geek411mag.com

RICATION

Tired of that cell phone? Make a new one. Did a key computer part just break? Generate a replacement on the spot. Want a new car or home? "Fab" it yourself.

While home-based 3D printing (including someday printing the parts to build the actual home itself) is still a few years away, it's definitely the next big wave in DIY fabrication printing, an emerging technology that UAT already has been introducing to students for several years now. They have the tools to enter the real world ready to innovate, quite possibly becoming key players in advancing our new fabricated 3D world.

At UAT, students are producing prototypes for ray guns, full-length swords and even game controllers on the university's printer, to name a few projects. This wave of technological innovation prepares students for real-world application including what's on the horizon in the world of 3D printing.

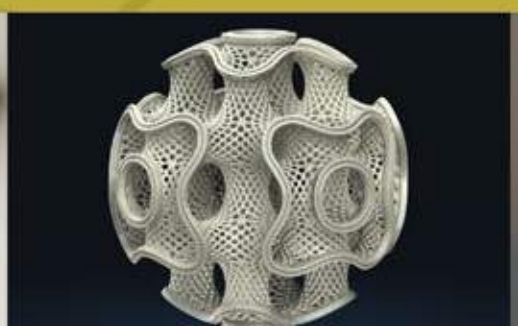
UAT's innovation is the game changer on a world stage. That includes everything from their Synchronic Learning methodology to their Network Security, Game Design, Robotics and Embedded Systems, and Advancing Computer Science curriculums to the state of the art equipment being used… including 3D printers.

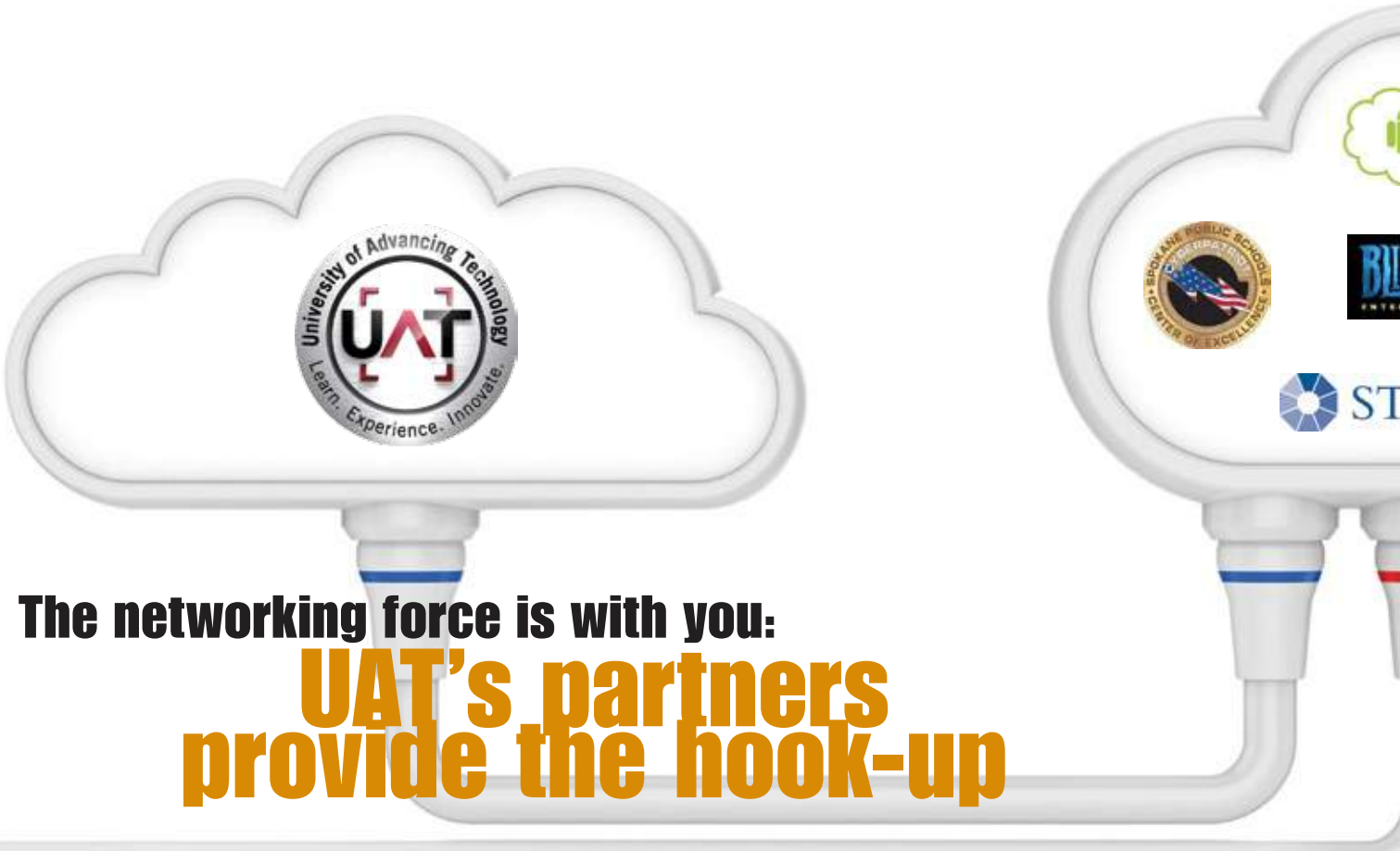
Home printing is possible now that printers have come down in size… and price. What once was so big it could fill a room or garage, now is a table top printer for as little as $500.

According to the November 2012 edition of *Popular Science*, amateurs [are] "fabbing" anything in plastic, from cell phone cases to scale models of Rodin's Walking Man. Yet, such tinkering, however nifty, is simply 3D printing's first act. Its real promise is much greater: to turn every home into a self-sustaining manufacturing and recycling center.

That will happen sooner than you think. Traditional 3D printers already fab in plastic, but changes are happening in the types of materials used. Industrial printers can print a multitude of materials, from glass to stone. Current technology includes:

> Printer maker Objet has released the Connex500, a $250,000 printer that works in 14 polymers at once.
> A machine developed by researchers at the Cornell University Creative Machines Lab is being used to print components vital to working electronics, as well as a functioning electromagnet and battery.
> Home printers made by Creative Machines Lab consumer-grade multi material printers are less than a decade away.
> Through Thingiverse, makers can scour a database of thousands of downloadable designs.
> Autodesk design software converts digital snapshots of real-life objects into 3D patterns.
> Adobe is developing a program that evaluates designs for structural flaws before they are printed.
> Aerospace and defense manufacturing leaders are integrating this technology more every day. Already, they're using 3D printers to produce hundreds of complex parts in plastic and metal. In the future, fabrication of entire aircraft, cars, boats and other vehicles is envisioned.
> RepRap printers take about 30 minutes to produce small 3D objects with ABS and polylactic acid to produce such items as a plastic joint. In the future, manufacturers hope to use several materials at once: plastics, metals, rubbers and ceramics. Once achieved, 3D printers will start producing more structurally complex items such as a cell phone.
> Printing plastic objects—in color—is as easy as running off a document on the "Cube 3D" printer.
> Earlier this year, the Filabot was created, a machine that repurposes plastic at home. This table top device grinds and melds most recyclable plastic into the raw filament used in 3D printers. If this device succeeds, makers will not only produce new objects in their workshops, they will repurpose old ones.





The networking force is with you:

UAT's partners provide the hook-up

Before you even get to UAT, it's not too early to begin thinking about life after UAT. Not just any university leverages the forces of its community network to provide opportunities to connect you to the real world—before and after graduation. At UAT, that's precisely what this private University's advancing technology community is designed to do.

UAT's community is more than just campus wide. They're part of a broad network of community partnerships. Company alliances strategically align with UAT's primary fields of study to help students gain valuable experience practicing in their field, and establishing those critical ties to the real world.

These organizations often come knocking on UAT's door, looking for the university's high caliber of people and advanced technology education as valuable resources for their companies. UAT's partnerships include Cummings Engineering Consulting, Stach & Liu, Blizzard and Microchip.

"While companies such as Cummings and Stach & Liu are represented on our advisory board, UAT's relationship with them and others goes deeper," says Nell Hall, Career Service Advisor. "They partner with us in research and also teach with us, hire interns, hire students for regular jobs, and collaborate in workshops and partnered projects."

Cummings and Stach & Liu have similar relationships with UAT. Both companies focus on network security and secure devices. They offer internships at an MBA level (some classified), in addition to workshops, partner projects, incorporate research into coursework and hire qualified students.

Cummings focuses on creation of mobile security devices for the DoD. They're a leading provider of mobile encryption products for sensitive and classified communications on commercial tablets and smart phones.

They're offering internships and special topics classes, and partnered with UAT on a grant, which UAT received. They've hired nine students so far from UAT's Network Security, Advancing Computer Science, Robotics and Embedded Systems, and Digital Media curriculums.

Stach & Liu is a security consulting company, focusing on network intrusion and defense, providing security consulting services to the Fortune 1000, high-tech startups, and financial institutions worldwide. Their mission is to help companies secure their networks and applications.

"Cummings Engineering is proud to partner with Arizona's finest academic organizations including UAT," says Darren Cummings, CEO. "The specialty knowledge UAT provides to its students and industry partnerships presents a unique opportunity for ambitious students looking to differentiate themselves in today's competitive market. UAT and Cummings Engineering share the same vision around patriotic purpose for the skill sets they help nurture in these young bright minds and we are thankful to be in a close partnership together."

UAT PARTNERSHIPS

Partnerships with national and international organizations provide the connections:

- Microchip
- Blizzard
- AZ TechCelerator
- Arizona Science and Technology Festival
- Cyber Patriot
- FBI
- Droid Cloud
- City of Tempe
- Stach & Liu
- Cummings Engineering
- Department of Defense (DOD)
- Central Intelligence Agency (CIA)
- Department of Homeland Security (DHS)

Partnerships with Blizzard Entertainment and Microchip Technology Inc. include innovative project development.

As a premier developer and publisher of entertainment software and one of the most popular and well-respected makers of computer games, Blizzard enhances independent games with the Starcraft game engine. UAT was approached by Blizzard to ask if students could build tutorials for their Starcraft 2 Development Kit and Starcraft 2 Art Tools. While Blizzard has built advanced tutorials, UAT students are building the first entry level tutorials for these tools to make them more accessible and expand their use.

Microchip, a leading provider of microcontroller and analog semiconductors, recently approached UAT with two student-based partner projects. UAT students were asked to design interfaces for a Microchip debugger and Eclipse (multi-language software development environment). In a second project, UAT students were asked to design curriculum to teach embedded systems programming using C++. Microchip liked the work of UAT's students so much they actually offered scholarships to the students involved with these projects, so they were paid while getting real world experience.
Just how do students find out about these opportunities? The team of UAT professors make them available to qualifying students, but sometimes special projects call for open applications such as the Blizzard tutorial collaboration.

UAT's partnerships reflect UAT's signature synchronic learning model. Synchronic learning forms the framework for a vibrant, multifaceted academic experience, which encourages students to explore new and traditional concepts, and to independently and collaboratively practice what they learn in real world applications. As a result, students become forward thinking innovators and capable problem solvers.

Google™ glass

See the next big thing coming

New computer technology is unfolding before your very eyes.

Carrying your computer with you everywhere has now taken on a whole new meaning. Soon, you may just be able to wear it.

The newest fashion trend may soon be… wearable computers?

In an attempt to make wearable computing mainstream, Google has developed a prototype for Project Glass (hardware) and Google Goggles (software) that, when combined, create a pair of eye glasses with computer technology built in.

Google's Project Glass is the smart pair of glasses with an integrated heads-up display and a battery hidden inside the frame. Google Goggles is software, an app that can search the web with merely a photo or scan. Although it may surprise you to learn that wearable computing is not a new idea, Google has propelled the concept forward and is looking to produce Google Glass in significant numbers.

A small screen in front of your eye will display information and come equipped with motion sensors, thanks to GPS and either 3G or 4G data connections. Although the screen on the most current prototype isn't transparent, it is likely that Google's Project Glass ultimately will use a transparent LCD or AMOLED display to place information in front of your eyeballs, according to Google blogger Seth Weintraub. A front-facing camera and a flash work with GPS to track your location. By simply tilting your head, you can scroll and click on information. Voice input and output also will be used.

The device is designed to be a stand-alone device rather than an Android phone peripheral while Project Glass can connect to a smartphone via Wi-Fi or Bluetooth 4.0 and "it communicates directly with the cloud."

MEET NEW FRESHMEN

MEET MORE FRESHMEN

See how other UAT Freshmen have adjusted to life on campus.
www.uat.edu/meetnewfreshmen

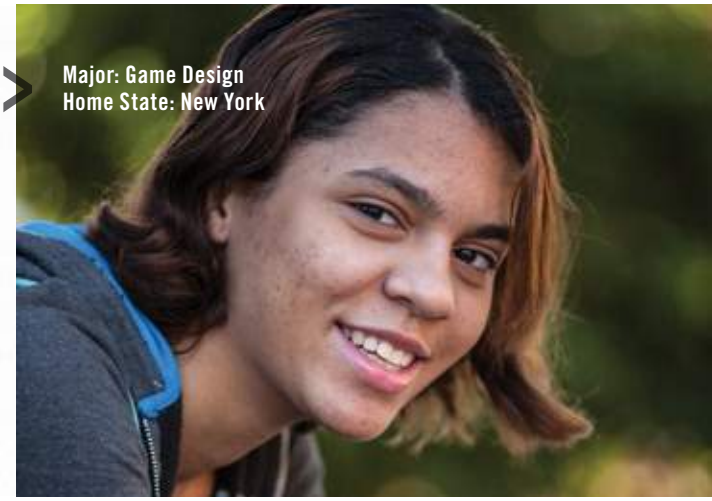
JACOB GLASS >

Major: Digital Video
Home State: Michigan

Realizing early on that photography and film were his passion, Jacob Glass discovered UAT online after realizing community college wasn't for him. He's originally from Howell, Mich., but blazed a trail out west that led to UAT's Digital Video Program. His freshman year is going even better than he originally expected. Jacob likes the smaller classes specific to his interests and already is involved in activities. He recently hosted a Fly-In G33k program for prospective students and joined the Ultimate Frisbee group. Jacob wants to someday produce indie films.

"Taking classes in what I like to study makes it easier to go to class, I try to tell my friends at bigger universities 'hey you guys should come over and see our campus and what we do.' I'm trying to convince them to come here and do something they like."

ANA LEGUILOU >



Major: Game Design
Home State: New York

When Ana played the Toy Story game at age six she realized how much she loved games. That's not surprising, because her mom and dad also love them.

Originally from New York City, Ana learned about UAT in high school when she received an introductory letter in the mail. She explored the website and was impressed. She got accepted a week after her senior year started. Ana says her first year is amazing and very welcoming. Everyone gets along with everyone. Here, people are not judged; they can be themselves.

"We're like a whole big family, always there for one another. Teachers motivate you to get the work done and really want to see you do well. They're also there to talk to and understand if you are going through something."

CODY FISCHER >

Major: (Dual) Game Programming and Game Design
Home State: California

Cody's research online revealed that UAT's specialization in game programming and game design was a great match with his interests. Originally from Downeyville, Calif., Cody previously earned an associate's degree in computer programming from a community college. He's already discovered that UAT blows it out of the water. While he's working hard with plans to graduate in two years, he still finds time to enjoy extracurricular activities. He and a friend started a UAT paintball team. He's part of the Fencing Club, too, and was elected Student Government Secretary.

"When I tell my friends about the tools and programs I get to use to make these games, they get jealous. I love learning about the different video games, the languages that go with it and the access to industry level programming languages like UDK packages."

BLOG POINTS

what students are saying

Did you know...

UAT hosts regular open house events where you can stay as the overnight guest of a UAT Student. RSVP at www.uatflyingeek.com

CHECK US OUT ON FACEBOOK
www.facebook.com/uat

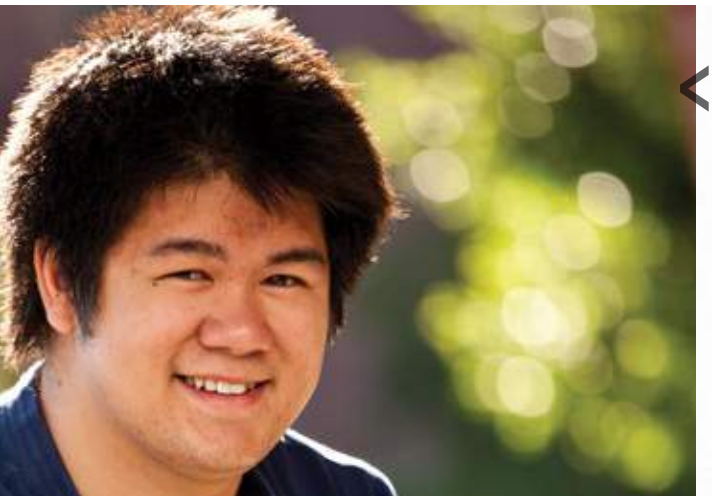
MOLLY SATTERFIELD

It's been incredibly busy here at UAT.

Some quick updates! Had Fly-In G33k on June 23rd. It was a lot of fun. We had free food made from the RAs by the grills and played card games. We have another Fly-In coming up this Saturday, so if I didn't see you in June, I hope to see you then!

One of our ambassadors, Heather Hall, got a job in the industry, so congrats to her! Ambassador Devon just got back from Italy. She went with UAT's Palio Project. If you see her, definitely ask about it!

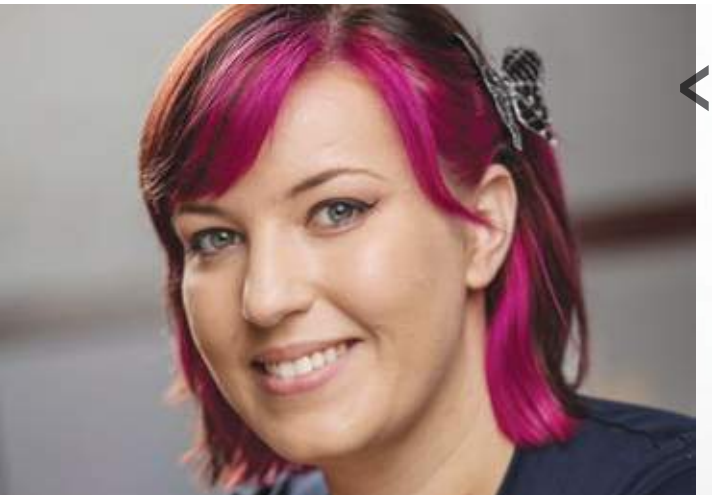
See what else Molly is up to at www.uat.edu/MeetMolly



ALEX DINH

So, during this week or more precisely the weekend, I did the 48-hour challenge, AKA intercollege challenge. It was a very fun event and a fantastic learning experience for new Digital Video Majors. I was made assistant photographer for the event, which is really cool. There is so much to tell about the challenge and so many fun stories but overall UAT won three out of the four possible awards, which one of the two UAT teams theme and the one that won was MUSICAL. Which is a really hard theme to pull off, and to win it is really hard, so great job on their side.

See what else Alex is up to at www.uat.edu/MeetAlex



JAYLYN DAWSON

There's a new event at Founder's Hall called "Art Unplugged" which is where you don't use anything digital that runs on electricity to create a piece of art. I can't wait to get some time to do a painting; it's been too long since I've painted!

Yesterday I found this really cool app for making prototypes of apps, it's called pop (popapp.in). Basically you take pictures of your wire frames and then you can link between images. I just borrowed an iPad from the library so I can't wait to put this app in action. I finished story boarding it so the next logical step it to prototype. Hopefully it lives up to everything I want it to be!

See what else Jaylyn is up to at www.uat.edu/MeetJaylyn

The UAT admissions process should 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 an advisor from the University who can help guide you every step of the way. In addition, applying early helps ensure acceptance, and:

- Gives you access to UAT's Intranet
- Provides you access to your Admissions Advisor
- Keeps you connected with campus events and student news
- Helps you become part of the UAT community

WHO'S ADMITTED TO UAT?

UAT welcomes exceptional students who are passionate about learning in every phase of their life. Just as important in the admissions process is your aptitude for technology. For instance, a good student who has been programming or building websites or advanced robots is of more interest to UAT Admissions than someone who has not demonstrated an aptitude for technology, but has top grades and test scores. In other words, we're looking for future technology innovators and future patent holders!

SO... WHAT'S NEXT?

Prospective students can apply online at 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.

did you know...

Applying early affords you greater access to UAT; what's happening on campus, student scholarship information, student forums and more. www.UAT.edu/apply

FALL 2013 SEMESTER

Semester: September 9 - December 20
Midterm Break: October 25 – 27

SPRING 2014 SEMESTER

Semester: January 13 - May 2
Midterm Break: March 10 - 14

SUMMER 2014 SEMESTER

Semester: May 12 - August 22
Midterm Break: July 3 – 5

SCHOLARSHIP DEADLINES FOR FIRST TIME ENTERING STUDENTS ARE AS FOLLOWS:

Spring Semester:	September 30 prior to start date
Summer Semester:	February 28 prior to start date
Fall Semester:	February 28 prior to start date

Students present cyber defense innovation projects to 22 nations

INTERNATIONAL CYBER DEFENSE WORKSHOP ICDW

Being contacted by the U.S. Department of Defense (DoD) can be pretty intimidating. After all, the DoD specializes in matters of national and international security at the highest levels.

Unless you're Shelley Keating, Network Security/Network Technology professor from UAT, who was very excited because it meant UAT was being invited to participate in the International Cyber Defense Workshop (ICDW) that took place in November 2011.

This is one of many doors of opportunity opening for UAT and its students, thanks to Professor Keating's role that contributed to the University's designation as a Center of Academic Excellence in Information Assurance Education from the National Security Agency. The elite designation provides assurance to the U.S. Department of Defense that UAT is a highly capable and reliable partner. Recognized by industry and government alike, UAT's Bachelor of Science in Network Security is one of the most prestigious programs in the country.

"The workshop is designed to be a military-to-military workforce development activity for partner nations' military computer network defense practitioners," explains Johanna Vezzana, DoD CIO International IA Program Support. "ICDW builds technical skills and provides an opportunity for registrants to collaborate with global partners with the common mission to advance the cyber workforce and minimize cyber threats."

Experts from industry, academia and government provide lecture and exercise content for each workshop in June and November. Content providers are selected from organizations that have a relationship with the DoD CIO Information Assurance Policy and Strategy directorate or the International Information Assurance Program.

UAT was asked to contribute student presentations and related materials to the online conference that attracted an international audience of 220 people in 22 nations.

After receiving the invitation to the November 2011 workshop, Professor Keating met with Professor Craig Belanger to select five Network Security students who exemplify UAT's innovative spirit. John Faulkner, Charles Neitzel, Drew Porter, Chase Schultz and John Wiltberger were chosen to present their student projects and joined a prestigious group of participating organizations. In addition to UAT, participants included Carnegie Mellon SEI, University of Nebraska at Omaha, McAfee, Inc., The SANS Institute, Naval Postgraduate School and the National Defense University iCollege.

The ICDW was a resounding success. That's not just UAT's opinion. A formal "thank you" letter was sent to Professor Keating and her team recognizing UAT's significant contributions:

"I would like to extend to the University of Advancing Technology my sincere thanks for your significant contribution to the 11th International Cyber Defense Workshop (ICDW) and our outreach efforts under the DoD CIO International Information Assurance Program," said Michael J. Coomes (in his letter) from the International Information Assurance Program at the DoD. "The ICDW is a key component of the program and contributions such as the time, materials and resources provided by UAT were instrumental to the success of the ICDW."

"I'm really proud of them," says Professor Keating of the students. "They embraced this as an opportunity to contribute and showcase their work. And, they've helped to establish the foundational relationship with ICDW. These students helped to make this possible, and strengthen the opportunity for future interactions with the ICDW," she adds, beaming.

Just one week after uttering these words, Professor Keating received another invitation to participate in the June 2012 ICDW workshop.

UAT's relationship with the DoD has expanded its spider web of local and national connections with other key individuals and organizations.

Examples include:

> armedzilla.com (military social network, similar to Facebook) UAT's connection and resources were among the reasons the military opted to keep armedzilla's base headquarters right here in Arizona.

> Dr. Rocky Young, adjunct professor at the National Defense University Information Resources Management College, physician's assistant and former Chief of 11th Wing Information Assurance Office, USAF. He has helped connect UAT to conferences and Arizona businesses.

> Brigadier General Frederick Henry of the U.S. Army's Information Systems Management at Arizona's Fort Huachuca. UAT's relationship has yielded additional partnership opportunities.

"As we establish more connections, there's a feeling of amazement out there, a genuine sense about UAT and our security and technology programs, like they've found buried treasure in their backyard," says Professor Keating.

FOLLOW UAT'S CYBER SECURITY BLOG AT WWW.UAT.EDU/CYBERBLOG

did you know...

UAT students have been asked back to speak at the next ICDW. See what else the cyber security students are up to by scanning the QR code on this page.

Pick a peck: Sweet Pickles offers encryption for serialized data

Sure, pickles are key ingredients on many sandwiches but did you know the sweet kind are also keys to serializing, encrypting and de-serializing (translating) programming language Python objects?

Think of pickles in the network security world as specialized ZIP compression files. They utilize codes to process data so that it can be sent over the network. However, these pickles can be hacked at rest or in transit to deliver arbitrary, possibly malicious code when opened.

Protecting serialized pickle data in transit is what fueled Network Security major Chase Schultz to write an encryption scheme and invent open source Sweet Pickles as a student project. They're the newest way to securely transfer pickles while maintaining their functionality.

It all began when Chase, a senior and native of Goessel, Kan., attended the Black Hat Conference in Las Vegas in 2010. One of the featured speakers, Computer and Net Security expert Marco Slaviero, was talking about sour pickles, those pickles that have malicious code injected into them. He mentioned there is no really solid way to make pickling safe.

Fueled by Mr. Salviero's talk and the environment of innovation that Chase has been immersed in at UAT, Chase was both motivated and inspired to think outside the box and try to solve a real-world security issue. The open source tool offers layers of protection to ensure safe delivery over the network and receipt of secure information.

"Let's say a bank is sending secure data to Bob," explains Chase. "With Sweet Pickles, Bob is provided his very own 'key' to open the pickle when he receives it. After Bob opens the pickle, he wants to make sure it really came from the intended bank. So he uses another key to unlock or remove the bank's unique wrapping paper. When you see the bank's recognizable label or signature, that's when you know everything is secure."

So, how do you create a secure pickle? From the inside out. You inject code into the pickles, but the question has been how to do that without compromising the pickles and their data.

Part of the solution lies in the Brine, a methodology that uses DoD standardized, top secret strength encryption (AES-256). Combined with Python wrappers (software that is a bridge between an operating system and a driver) for cryptography software libraries PyCrypto and elliptic Curve Cryptography 521, Chase is confident that only the person in the pickle's receiving end can open this file.

NAME: Chase Schultz

WHAT: The newest way to securely transfer pickles (specialized Zip compression files) while maintaining their functionality

ALUMNUS: Class of 2012

MAJOR: Network Security

Chase has completed the Sweet Pickles prototype, which is functional. Aside from fine tuning it and providing written instructions for its use, it's available for free. He's hoping that the more it is accessed, the greater the chance of improving net security overall. The open source app will have a public license so anyone can access. (Scan the code below to get it.)

(Note of disclaimer: The burden of permission is on the user. If you don't have permission to use these tools, you assume full responsibility.)

"In my youth, I took so much from the internet, it's time to give back," says Chase.

Chase's ultimate goal is to provide a network security library of resources people can easily use, incorporating secure communication in a Python-based code.

Sweet Pickles has been well received. Professor Shelly Keating, who coordinated UAT's involvement in the International Cyber Defense Workshop (ICDW) in November 2011, was impressed with Chase's project and invited him to be a guest speaker during the online workshop.

"ICDW served as a golden opportunity to introduce Sweet Pickles as a solution to help make the network security infrastructure in our country and throughout our world safer," says Professor Keating.

Chase hails Professor Keating as a great resource and wellspring of encouragement.

"Prior to arriving at UAT, I attended a major university in Kansas, which didn't have near the hands on experience, practical application, support and encouragement that I've received here," says Chase. "UAT is one of the only schools in the nation to provide an education that teaches offensive capabilities. It was UAT's unique relationship with the NSA that drew me to this school. We do cool things here."

Get the Sweet Pickles open source app. Go to www.uat.edu/sweet

Security on call: Innovative alternative cell phone network

UAT partners with the U.S. Department of Defense (DoD) to offer one of the most prestigious Network Security programs in the country. What could be more impressive than that? How about when your family members, who work for the DoD, personally recommend UAT to you and encourage you to attend.

With those two things combined, it's no wonder Network Security major Drew Porter, a 2012 alumni from southern California, is inspired to innovate in the field of national security on a grand scale.

Most of us are intimately connected with our cell phones and their corresponding networks. Verizon, AT&T and Sprint are the major names we recognize. Now, there's one that serves as a more cost effective and secure alternative for cell phone use: Drew's Open GSM, a cellular network that's his Student Innovation Project (SIP).

Drews innovation, The Open GSM can be installed and operated at about 1/10 the cost of current technologies (1,000th of a cent per minute), but still will be compatible with most of the handsets already on the market.

Drew's prototype is an open source back-end GSM network that:
> runs off a laptop
> works via the internet
> uses a portable USRP "cell tower" you can purchase off the internet (USRP N210 Universal Software Radio Project as one example, approximately $3,000) that fits in a backpack
> connects to an existing handset, or phone from a GSM network, such as AT&T or T-Mobile

Not only is it more secure and less expensive to make calls, the Open GSM provides a small cellular network to businesses and third world countries that otherwise may not have access.

"The more I became aware of existing insecurities, the more I realized that rather than addressing each one it was better to create an entirely new, and more secure network," says Drew.

Drew has three innovation phases to his UAT Student Innovation Project:
> Phase 1, Completed—Working prototype developed; database and network expandable. Two Cell Sites were established to communicate to a central MySQL database.
> Phase 2, In Progress—Spec Compliance will be involved in this phase to become more of an actual GSM backend that integrates current practices by cellular communication companies into the open source project—to create a more open community within cellular networks.
> Phase 3—Get SIGTRAN working as a control mechanization for the transferring of calls to integrate them with multiple carriers.

"My project is accessible to everyone and I encourage their review, testing and feedback from other people," says Drew, emphasizing it is a living, breathing project that will evolve throughout his lifetime. "The whole point of open source is that many eyes make a better project."

Because Drew's Open GSM is an open source network, he encourages anyone to visit GitHub.com and try it out: github.com/iamredshift/OpenGSM/wiki/OpenGSM

Drew was one of five Network Security students invited to present at the International Cyber Defense Workshop (ICDW) because of the innovative nature of his UAT Student Innovation Project. His previous conference experience really came in handy. During a recent ToorCon conference, he presented a talk on how cellular networks communicate.

"I was glad to have the opportunity to participate in ICDW, and thrilled that people were excited to hear about this new network," says Drew. "It was a great experience."

"UAT's mission focuses on educating and empowering students with a passion for technology so they are prepared for a lifetime of successful contributions in an increasingly global and complex world," says Professor Al Kelly. "Drew is a fine example of innovation on a global scale. Our educational culture focuses on creating the experiences and environments that develop the minds and talents of our students to meet the challenges of the rapidly evolving technology environment."

NAME: Drew Porter

WHAT: The Open GSM network that can be installed and operated at about 1/10 the cost of current technologies but still will be compatible with most of the handsets already on the market

ALUMNUS: Class of 2012

MAJOR: Network Security

DREW'S TOORCON PRESENTATION CAN BE VIEWED AT WWW.UAT.EDU/OPENGSM

NETWORK NINJA: ELITE SECURITY TRAINING

In the spirit of the ninja's speed, attack mode, precision and mastering of techniques at varying levels, two UAT students devoted their joint Student Innovation Project (SIP) to developing Network Ninja.

Network Ninja, a security training tool, harnesses the real world's vast array and complexity of programs and suites in an online one-stop shop to help Network Security students and information security and assurance newcomers learn by taking the user step by step. Network Security and Network Engineering double majors John Wiltberger, project lead, and co-author William D. Howe created Network Ninja as a virtual, self-contained testing environment. This unique program teaches the basics of security tools and Linux operating system software that allows those with nearly no Linux experience the ability to become masters. The virtual environment simulates using software like Nmap and THC-Hydra.

"When it comes to security tools, there are a lot of them and they are really intricate and difficult to understand how to use," says John, from Chicago, Ill. who graduated in 2011. "It takes a lot of research to know which ones to use. Network Ninja makes it less daunting."

Also a 2011 graduate, William says the goal of the entire project is to have a true "single download" operating system. Anyone can learn network security content without having to setup the entire environment on their own, "sort of the first step before learning something more intermediate/advanced such as Backtrack Linux," he adds. "The first time we actually pictured this project, we were told it was impossible," says John. "We had big ideas that our tool would be easy to use and provide virtualization. Someone on the team told us there was no way we could finish this… and he quit. But, we didn't give up."

The distribution includes:

> Over 10 different tutorials, including a beginning Linux tutorial
> Custom Python-based testing engine for real-world results
> Working virtualization built in for life-like training
> An easy to follow website to outline courses
> A "wicked cool logo" to enhance the student experience

John was among five UAT Network Security students who were invited to present their SIPs during the International Cyber Defense Workshop (ICDW) hosted-by the Department of Defense for an international online audience. So, how did it feel to be invited to the ICDW?

"Scary, I'll be honest," says John. "Although I was student body president and presented in front of audiences, having a full international conference that anyone can watch online was something completely new. My presentation went well for the most part, although there were a few technical difficulties. One big problem was that all my laptops ran Linux but the DoD's did not. I worked out all the bugs and kinks just 20 minutes before my presentation."

On top of that, right before John's presentation, the woman in charge of the ICDW emailed him to say a representative from the British Intelligence Agency had logged on to join the conference and listen to his talk.

John has learned volumes over what he would have learned anywhere else. Previously in a business program at one of the largest universities in the country, John decided to switch to UAT when he realized he liked "computer stuff."

He's benefited from UAT's teaching style, which he feels is second to none.

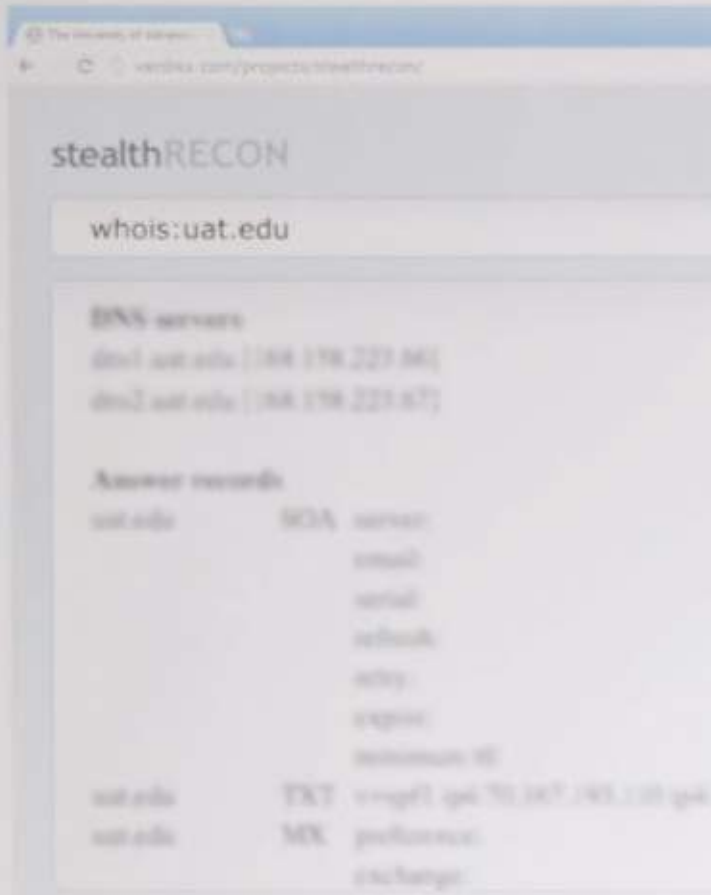
John credits three UAT faculty members in particular for what he has learned in this project. Professors Shelley Keating, Al Kelly and Craig Belanger were instrumental in providing three key perspectives that created a well-rounded project applicable to a broader audience. The impetus for his project was spurred by Professor Kelly's NTS330 Applied Exploits and Hacking class.

"Technology changes so rapidly, that by the time the course is finished changes have already occurred," says Professor Keating. "UAT goes beyond teaching the how to's; they teach you the concept, how to learn and how to stay on the cutting edge. They also give you hands-on experience that is invaluable in the real world."

NAME: John Wiltberger
WHAT: Network Ninja (SIP) A security training tool designed to help Net Security students and Information Security and Assurance newcomers learn through a step-by-step process
ALUMNUS: Class of 2011
MAJOR: Network Security

Download the alpha version of Network Ninja
Go to www.uat.edu/netninja

Stealth Recon: Web interface provides net security answers



Ensuring a safe and secure web environment requires both stealth and reconnaissance. UAT student Charles Neitzel's Student Innovation Project (SIP), Stealth Recon, can attest to this.

In the world of net security, there are many programs out there that conduct security checks, such as port and vulnerability scanning, to ensure a safe web environment. But remembering all of these programs and when to use them can be a challenge whether you're using your home computer or work in an office.

That's why Network Security and Technology Forensics major Charles Neitzel (Class of 2011) developed the Stealth Recon web interface to group programs for niches like port and vulnerability scanning with an easy-to-use online format that does the work for you and gives you the results.

"You don't have to remember all of the command line stuff, and you don't have to use multiple programs, because that's what the backend of the web interface will do for you," says Charles, who hails from Salt Lake City, Utah. Stealth Recon as a name was derived from the early stages of the penetration testing process. The initial phase of the process is reconnaissance. The reconnaissance phase is broken down into two components—passive recon and active recon.

Active recon actually involves going out and probing the target system; this is an action that would be detectable (in most cases) by the owner of the target system. Passive recon involves gathering information that is publicly available—WHOIS, DIG, Google searching, etc. The actions performed in passive recon are undetectable by the owner of the target system, hence the word "stealth." The project was originally designed to do nothing more than automate reconnaissance tasks, so that's where the "recon" portion comes from.

Unlike the security suites with tools you select one by one, Charles designed Stealth Recon to be fully automated, group multiple programs together and conduct the scanning for you. He holds the copyright for the idea and was the project manager throughout the development. Former UAT student Ronald A. Richardson served as the project's main programmer/designer, although he left UAT prior to the project's completion. The project currently is in the Phase 1 Alpha Stage, with functionality limited only to a rudimentary WHOIS and DIG query on an entered URL.

The program also serves as a network enumeration tool, inventorying all computers and allowing you to see how networks and servers are connected.

Charles received his inspiration for the project from Professor Shelley Keating. He only had one class with Professor Keating, but it was among his best.

"She is one of the most highly respected professors at UAT," says Charles of Professor Keating. "I would not ever hesitate to seek out her advice as professor, colleague and friend. She commands respect from everyone, embodies what UAT is all about and supports UAT's vision and message."

He adds that Professor Keating was a huge inspiration for his project. "If it weren't for Professor Keating and the many other faculty members at UAT, I probably wouldn't have enjoyed the project as much as I did," says Charles. "They're all world class with the highest caliber of work experience."

"UAT focuses on making students marketable because eighty to ninety percent of what we learn is hands on," says Professor Keating.

Charles was invited to participate in the International Cyber Defense Workshop (ICDW) and was incredibly flattered. Despite having a scheduling conflict that prevented him from participating, he feels the invitation "has since become a topic of great pride in myself and an indication that people are noticing my work; it's a great feeling."

"Although I didn't actually present at the conference, I still feel like it has been very beneficial to me. I am very honored to have gained such recognition and exposure to the international information security community. It's really given me a lot of motivation to pursue my personal goals knowing that I can achieve some really great things that I never thought possible."

NAME: Charles Neitzel

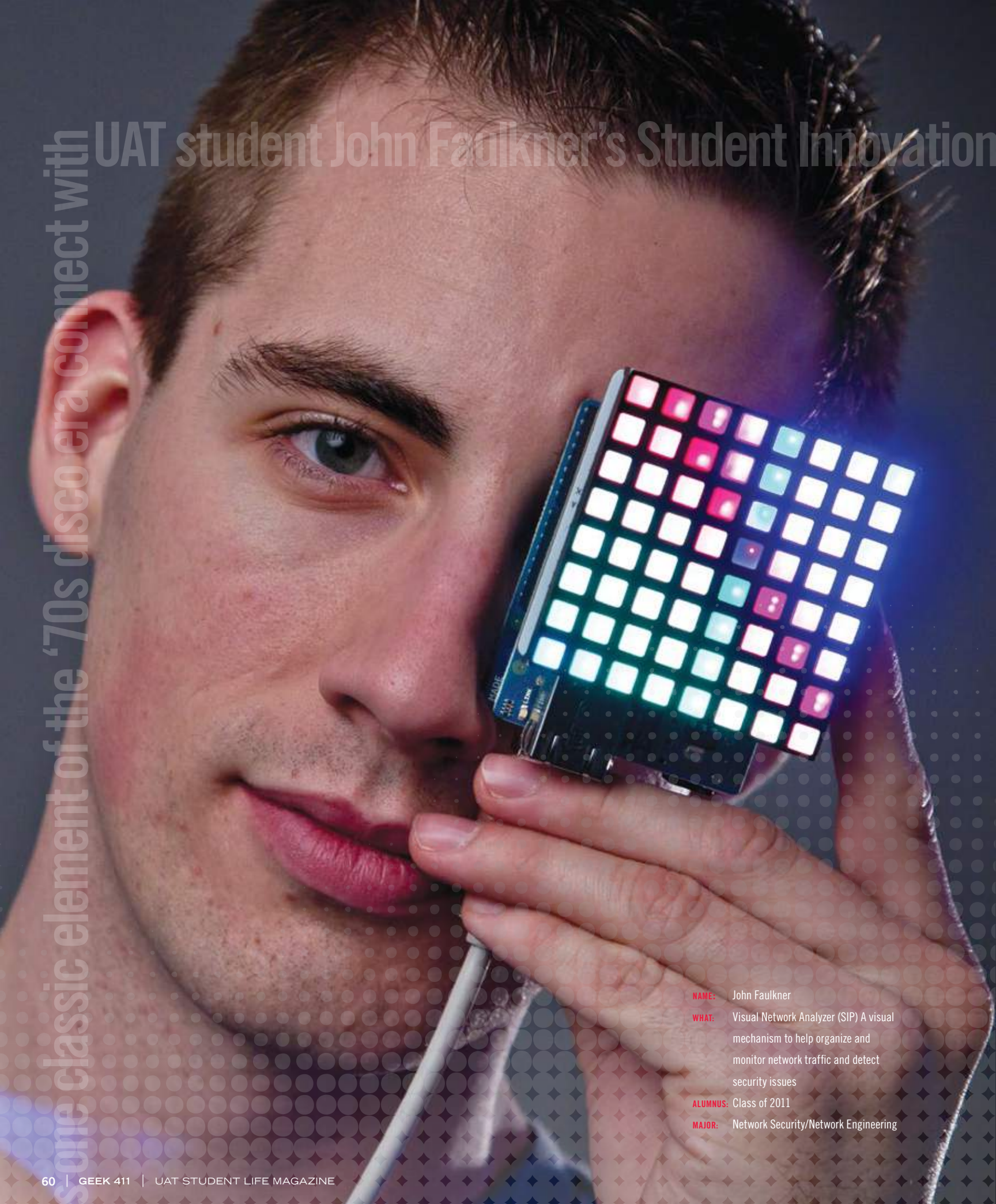
WHAT: Stealth Recon (SIP) An easy to use online web interface that groups programs like port and vulnerability scanning

ALUMNUS: Class of 2011

MAJOR: Network Security/Technology Forensics

UAT student John Faulkner's Student Innovation

some classic element of the '70s disco era connect with



NAME: John Faulkner

WHAT: Visual Network Analyzer (SIP) A visual mechanism to help organize and monitor network traffic and detect security issues

ALUMNUS: Class of 2011

MAJOR: Network Security/Network Engineering

Dance of light: Student creates innovative Visual Network Analyzer

Like so many projects, ideas are morphed from discussion and exploration of ideas. John Faulkner, a UAT double major in Network Security and Network Engineering, was brainstorming one day with Professor Al Kelly, bouncing ideas around as students and professors often do. Professor Kelly jokingly mentioned a disco ball and how it shines lights in patterns and colors in a room.

That discussion sparked John's interest and he decided to take that idea one step further to create his VNA concept. He envisions it will emit lights in organized patterns and colors through a dome to help organizations and individuals monitor network traffic, detect security issues in real time and improve incident response time.

A disco ball was one model being explored; a security camera mounted on a dome yet another.

"I've always looked at those domes with security cameras and thought it would be so cool to take it to the next level and shine lights through it," says John, a Phoenix, Ariz., native. "If you can use different lights to detect network security issues generating 'bad' traffic, while it is occurring, solutions can be implemented faster and more effectively."

John built an 8" x 8" LED matrix prototype that includes Arduino Uno, Ethenet Shield and Color Shield—an initial design that will serve as a springboard for other designs being considered. His VNA was the focus of his presentation during The International Cyber Defense Workshop (ICDW), an online conference for which he was selected as a speaker because of his project's innovation.

The prototype is a work in progress with multiple phases that will continue to evolve with visuals and physical designs, and creation of more network protocols represented by various colors. John also wants to implement a vulnerability analysis for signature detection, anomaly detection and detection of malicious behavior.

He sets his sights on the beginning phases of his project being implemented right here at UAT, where network activity is abundant. Ultimately, his goal is to see his VNA implemented as a focal point to the physical design of any Security or Network Operations Center.

Sources of inspiration include Professor Kelly and Digital Media Professor Vesna Dragojlov, who encouraged John to think out of the box from an algorithmic art perspective and innovate something that could light up a room, literally. She showed him different ideas from a waterfall of lights to sensors that change a room's entire color to green or red. John is considering one idea to install sensors that create mood-based transitions and change an entire room's color.

"UAT emulates the synchronic learning model in which students are challenged to explore new and traditional concepts and use what they learn to address a real-world problem," says Professor Kelly. "It's been inspiring to see John innovate a concept with great potential and witness his growth through this project."

John also has been inspired by national network security expert and entrepreneur Steve Ocepek, who innovated the "Cereal box" and "meter" to create visual representations of network traffic. Steve demonstrated these programs during the DEFCON 19 Cyber Security Conference, which helped John further develop his concept.

He was recommended to Professor Shelly Keating for participation in ICDW by a fellow student.

"At first I didn't know if I should present my project until it was finished," says John. "Then, I was told by students and faculty they consider it to be proof of concept because it was an idea that was pursued and generated something tangible to show what I was thinking. The more I took on that mindset, the more excited I got about showing it off. Presenting to an international audience was very intimidating. I wondered if it would be something of interest to an international audience."

It turned out a lot of people thought it was cool and thanked him for presenting it. "I've learned a lot from this project and from UAT, because I've been exposed to other areas of programming and the Internet that have really helped me connect the dots and apply what I've learned in the real world."

A 2011 graduate, John currently is a Security Analyst at Apollo Group in Phoenix.

ASK A STUDENT

Devon O'Mara

Class: Senior
Major: Game Art and Animation
Home Town: Phoenix, Arizona

MORE STUDENT Q&A
tag this or visit www.uat.edu/askastudent

Q: HOW DID YOU HEAR ABOUT UAT?

They came to a career fair at my high school and demonstrated virtual reality where they shrink you down to the size of a mouse. I realized 'oh my gosh, that is the school.' There was this other time at Blizzcon when I saw UAT's representatives who were so passionate about building trees for a particular game that I was inspired.

"I recommend UAT because of my ability to mix traditional arts with up-and-coming technology. I've heard this from everyone I've talked to. The smaller personalized environment helps you form relationships with students and instructors that I've not found anywhere else, including high school."

BACKGROUND ON UAT

University of Advancing Technology (UAT) is the technophile's college experience—a geek-friendly community uniquely suited to provide students passionate about technology an ideal place to live and grow. UAT is a private university for geeks that merges the values of the traditional academy with the modern technology campus, a fusion that enhances our ability to fulfill the mission of educating students in the fields of advancing technology to become innovators of the future.

Learning at UAT extends from our students, staff and faculty to the institution itself. UAT's dedication to learning is reflected in our efforts to create and develop new ways of learning that focus on the personal mission and vision of every member of the UAT community.

UAT strives to foster knowledge creation and achieve academic excellence. We are at the forefront of developing academic programs that tend to be unique among academia or emerge years ahead of other school, such as Artificial Life Programming and Robotics and Embedded Systems, as well as our established Game Development majors that merged artistic and programming aspects long before other colleges chose that focus for themselves.

At the heart of UAT's curricula is a technology-infused campus in Tempe, Arizona. This fusion of the traditional academy with the technology-focused curricula creates a distinct, non-exclusionary and geek-friendly university in which students learn to value their own uniqueness and the power of technology in education.

ACCREDITATION

UAT holds accreditations and certifications from such organizations www.uat.edu/accreditation, the Council for Higher Education Accreditation and the US National Security Agency's Information Assurance Courseware Evaluation program.

UAT is accredited by the Higher Learning Commission and a member of the North Central Association.

HIGHER LEARNING COMMISSION
30 N La Salle St.
Chicago, IL 60602-2504

LOCATION

Tempe, Arizona (Phoenix Metropolitan area)

2013 TUITION

Undergraduate tuition: $10,500.00 per semester
Graduate tuition: $7,350.00 per semester
UAT-Online tuition: $6,000.00 per semester
For more information on UAT Tuition please visit www.uat.edu/tuition

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 to see who has hired UAT alumni.

UAT IS COMPRISED OF

800 plus students from all
50 states and
4 of the seven continents that average a
3.0 incoming GPA scoring an average of
1579 on SAT, and
26 on ACT, and are supported by
68 full- and part-time faculty members who are leaders in both industry and education, creating a
13:1 student-to-faculty ratio, giving students the tools they need to eventually join the
3000+ alumni working in various industry sectors globally

* Information based on data collected from the September 2012 class of incoming freshmen.

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.

WHERE ARE THEY NOW?

uat alumni

UAT alumni are leaders, innovators and business developers, poised to advance the global tech world with their passion to innovate and blaze new trails, across the country, and beyond. These inspiring alumni are well on their way to applying UAT's synchronic method of hands-on learning, experiencing and innovating to advance global society.

NATE LAMARTINA
Title: Lead Character Artist
Company: Bioware
Major: BA, Multimedia, 2004
Home Town: Edmonton, Canada

AARON ASHLEY
Title: Software Engineer
Company: Microsoft
Major: BS, Software Engineering, 2005
Home Town: Seattle, WA

RUDY VALLE
Title: Animator
Company: Topps
Major: BA, Virtual Modeling and Design, 2011
Home Town: New York, NY

DANIEL BIALECKI
Title: Programmer
Company: Intel
Major: BS, Network Engineering, 2011
Home Town: Sacramento, CA

SARA WAKEMAN
Title: Associate Product Manager
Company: GetWellNetwork
Major: BA, Game Design, 2011
Home Town: Bethesda, MD

NOAH CORRADIN
Title: Unix Administrator
Company: LucasFilm
Major: BS, Network Security, 2012
Home Town: San Francisco, CA

ERIN PRINCE
Title: Video Game Producer
Company: Playdom (Disney)
Major: MS, Game Prod. and Mgnt., 2009
Home Town: San Francisco, CA

RICK RAVENELL
Title: VFX Artist
Company: Encore Hollywood
Major: BA, Multimedia, 2007
Home Town: Los Angeles, CA

EVAN SPRAGUE
Title: Digital Artist/Archivist
Company: Intel
Major: BA, Digital Video, 2009
Home Town: Phoenix, AZ

DAVID SHOREY
Title: VFX Artist
Company: The Institution Post
Major: BA, Multimedia, 2003
Home Town: Los Angeles, CA

KEVIN STEVENS
Title: Network Security Analyst
Company: Alert Logic
Major: BS, Network Security, 2012
Home Town: Houston, TX

KYLE CHEEK
Title: Technical Investigator
Company: Honeywell
Major: BS, Technology Forensics, 2012
Home Town: Phoenix, AZ

TROY BILBO
Title: Technical Support Engineer
Company: Dell Sonicwall
Major: BS, Network Engineering, 2011
Home Town: Phoenix, AZ

Disney Magic: Credentials, not pixie dust, made it happen

Few things are more magical than being hired by a company to work on a social media game that's been your favorite and you've played for years. Unless that company is the king of magic—Walt Disney.

UAT alumnus Erin Prince is a producer for Playdom, an online social network game developer that's a subsidiary of The Walt Disney Company as part of the Disney Interactive Media Group.

The game she was hired to work on was Playdom's wildly popular Sorority Life. At four years, it's the longest running "pink" game in the social space. Erin was one of the original players of Sorority Life.

Developing games played on Facebook, Google+ and MySpace, Playdom was recognized by Lead411 as one of the "2010 Hottest Silicon Valley Companies." They're currently the largest social game developer on MySpace and ranked number 15 by MAU on Facebook.

Erin works in the heart of Silicon Valley in California at Playdom's Palo Alto office. She can see the Facebook and Google headquarters down the street.

She hails from Texas, graduating in 2006 with a Bachelor of Arts in Game Design and in 2009 earned a Master of Science in Game Production and Management from UAT.

Her specializations include video game production, live operations, interactive feature development and game studies research. After she graduated, Erin was hired at Aeria Games before joining Playdom as an associate producer on the *Sorority Life* team. She quickly advanced and recently was promoted to producer.

How did Erin snag such a sweet job? The position was for an associate producer on the *Sorority Life* team. Because she knew Sorority Life so well, she went into the interview with constructive feedback. She told them "Let me to tell you what I love about it and what I'd recommend changing."

It just so happens that even before she applied for the position, Erin had sent Playdom a letter pointing out some of *Sorority Life's* exploits. During her interview for the job as associate producer, she told them about the letter. Her deep connection to the game and her desire to provide constructive input made an impression. She got a call with a job offer even before she arrived back home.

Today, Erin leads her own team that's developing a new, top secret game project. "My top secret team begins with just myself and the designer." she explains. "Then, it's up to me to select the artists, engineers and game designers." But, she still serves as a creative consultant for Sorority Life.

Her new team will be a small, fast moving team of about 10 people. She explains the process by saying: "We have kind of a rolling plan that means a team will build games, stay on it while it's live, break apart, form new teams and build new games. A team is always breaking apart and coming together in different ways so that as new games are developed, the people best suited are involved. This also allows us to rotate in new people. We help new people learn and get their hands dirty really fast – right from day one."

Erin wasn't always on a technology career path. She was a student at University of Texas (UT) at Arlington as a theater major when she realized technology might be a better fit.

> "I gave a presentation in one theatre class on how video games do a better job creating cathartic experiences than a theatrical presentation

can. After that, I got feedback that made me think theatre may not be my calling. It didn't occur to me that making video games was an actual job until I was sitting in a 3D modeling concepts lecture and the instructor mentioned game production. It hit me like lightning. I knew at that moment I wanted to be in game production management."

Erin transferred from UT Arlington to UAT because only a few schools offer this master's level specialization. She loved UAT's personalization and specialization in her career field.

In between degrees and jobs, Erin got married and had three kids, one son and two daughters. "My children love to go to work with me because they think they're going to sit down and make games. They also kind of think I work for Mickey Mouse."

Erin was invited back to UAT in November to present during Tech Forum, UAT's semi-annual event where industry experts conduct lectures, interactive workshops and provide ample opportunities to network. Her topic was how students can get jobs in live operations at game studios like Playdom. She talked about everything that happens after the game launches—artists, engineers, game designers and producers not only exist in game development but also in live operations, keeping the game running, keeping the people wanting to come back.

"We're looking for people just like you for live operations, an emerging field that people weren't very familiar with three to five years ago," said Erin during her talk. "Now, games have a variable life span. So much goes into the game after it's launched. A contest, a tournament or even adding a new outfit for a character to wear takes a separate team of people. There's no rest in live operations. You're living inside the game all the time."

Play Erin's game, *Sorority Life* at www.uat.edu/erinprince

NAME: Erin Prince
WHAT: Producer, Playdom
ALUMNUS: Class of 2009
MAJOR: Game Production and Management

did you know...

UAT hosts two Technology Forums a year with industry professionals and alumni. Sit in on lectures, attend interactive workshops and network with professionals in your filed of interest. Go to www.UAT.edu/techforum

geeked at birth

UAT is the only university to teach the entire game spectrum with 5 game specific degree programs.

We don't just teach how to use hardware and software; students are immersed in all levels of video game design, from initial story boarding to the final, polished project.

Learn from professors who have real-world industry experience.

www.gamedegree.com

learn

Bachelor of Science > Game Programming
Bachelor of Arts > Game Art and Animation, Game Design, Serious Game and Simulation
Master of Science > Game Production and Management

come study at the university that's been producing alpha gamers for over years

⚠ CLUSTERGEEK WITH CAUTION

LEARN, EXPERIENCE AND INNOVATE WITH THE FOLLOWING DEGREES: Advancing Computer Science, Artificial Life Programming, Digital Media, Digital Video, Enterprise Software Development, Game Art and Animation, Game Design, Game Programming, Human-Computer Interaction, Network Engineering, Network Security, Open Source Technologies, Robotics and Embedded Systems, Serious Game and Simulation, Strategic Technology Development, Technology Forensics, Technology Product Design, Technology Studies, Virtual Modeling and Design, Web and Social Media Technologies

University of Advancing Technology
UAT
Learn. Experience. Innovate.

WHO: Radial Impact, a game production company started by UAT students

WHAT: Technology Challenge

WHERE: AZ TechCelerator Surprise, Arizona

RESULT: One FREE year of office space, $1,250 business start-up grant, their own game engine on which they are building War Plan Red

Accelerated Impact: Students Win City of Surprise Tech Challenge

AZ TechCelerator radial impact

Winning a competition and receiving an award is an impressive accomplishment. Winning a competition that secures you free incubator space for one year is the opportunity of a lifetime.

That's just what happened to a group of UAT students who have joined together to start Radial Impact, a video game production company. They are the newest tenant in the AZ TechCelerator in Surprise after the students won the city's first ever Technology Challenge.

In partnership with UAT, the city-operated AZ TechCelerator sponsored a judged competition in which entrepreneurial UAT students presented their graduation project in hopes of winning a free year of office space, professional support services and a $1,250 business start-up grant from Wells Fargo.

"We wanted to expand our partnership with UAT in order to encourage new technology and business in the City of Surprise," AZ TechCelerator Manager Julie Neal told the City Council. "We are very excited to welcome Radial Impact to our community."

The student innovation project (SIP) of senior Joe Gohn, a Game Design major, and Patrick Gantt, a Game Art and Animation major junior and lead artist, was a gaming engine that ultimately won the August 8 competition.

The TechCelerator incubator program takes in small business and gives them resources to make their businesses successful in hopes they will stay there. Surprise was looking for outstanding student projects with the impetus for them to develop into a company.

Thanks to this new incubator space, Radial Impact's team is able to grasp the full potential of UAT's "learn, experience, innovate" mission.

"We're not just making a game. We're making a unique gaming engine that enables the creation of cinema-quality graphics in real time," says Joe. "We're pushing technology on the engine side of things. We want to take what's out there, make it better and be on the forefront of pushing our technology to the next level."

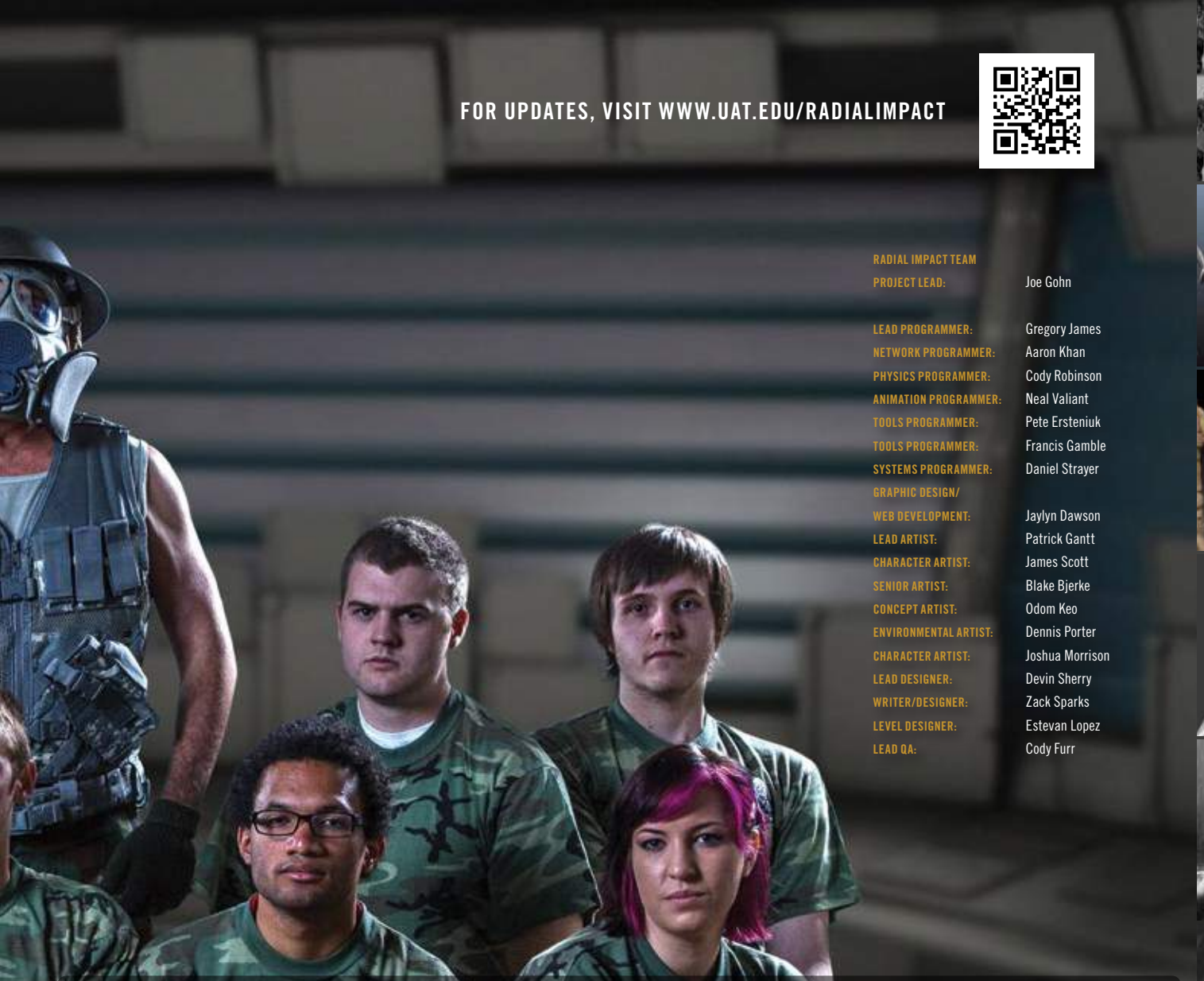
There are other commercial engines out there. Epic Games uses the Unreal Engine, the most widely used game engine on the market.

Rather than paying to use another company's game engine, Radial Impact built Blanched Almond, a very powerful engine they can use to make their own games.

"It's the experience of doing it," says Joe. "And we want the security of knowing if something happens, our local crew knows how it works better than anyone and we can troubleshoot. It's unique to us."

Once the engine was done, the team brought on six other UAT programming

FOR UPDATES, VISIT WWW.UAT.EDU/RADIALIMPACT



RADIAL IMPACT TEAM	
PROJECT LEAD:	Joe Gohn
LEAD PROGRAMMER:	Gregory James
NETWORK PROGRAMMER:	Aaron Khan
PHYSICS PROGRAMMER:	Cody Robinson
ANIMATION PROGRAMMER:	Neal Valiant
TOOLS PROGRAMMER:	Pete Ersteniuk
TOOLS PROGRAMMER:	Francis Gamble
SYSTEMS PROGRAMMER:	Daniel Strayer
GRAPHIC DESIGN/ WEB DEVELOPMENT:	Jaylyn Dawson
LEAD ARTIST:	Patrick Gantt
CHARACTER ARTIST:	James Scott
SENIOR ARTIST:	Blake Bjerke
CONCEPT ARTIST:	Odom Keo
ENVIRONMENTAL ARTIST:	Dennis Porter
CHARACTER ARTIST:	Joshua Morrison
LEAD DESIGNER:	Devin Sherry
WRITER/DESIGNER:	Zack Sparks
LEVEL DESIGNER:	Estevan Lopez
LEAD QA:	Cody Furr

students. When they realized how fast and skilled they were together, they transitioned to a different, more powerful language. They wanted to write all of the code themselves, not use what's out there.

The team of 25, 18 of whom are UAT students, moved into their 750 square foot space in September, enough space to allow everyone to work together at one time. Others are from the Art Institute of Phoenix helping them out.

When do they get a chance to work if they are students going to class? From 6 p.m. until 1 or 2 a.m. after classes and day jobs are finished.

With this new space, now Radial Impact is able to concentrate more fully on using their engine to create *War Plan Red*, a game where Call of Duty meets Ace Combat. Call of Duty is fast paced, with only a few seconds in between seeing enemies. It keeps the player constantly shooting and fighting. *Ace Combat*, on the other hand, focuses on vehicle combat, tanks, and planes. The game is scheduled to be released in late 2013 on Steam.

Other ideas for games have been thrown around, and now they have all the resources to develop them.

"Once our lease is up, if we are doing well and War Plan is doing well, we will probably stay there and keep working on something new," says Joe. "We want to be self sufficient so that every game we release will fund the next game we release."

Team programmer Greg "Raj" James, a senior majoring in Game Programming, feels that *War Plan Red* is one of the biggest projects coming out of UAT.

"Making a game engine from scratch alone is a really big project, but combine that with making a game as well and it becomes a great venture and I'm excited to be a part of it," says Raj. "Ever since we got the space we've been snowballing towards becoming bigger and better. We've always been super dedicated but now we've turned up the volume even more."

"I really like UAT," says Joe. "It's a nice community, and I like the policies. UAT doesn't have rights to things we build. All they ask is if you make something cool, let them advertise with it. This is really awesome for us because we want to keep those rights for us. The faculty is really great and always willing to help. It's a nice environment for development."

CLUBS & GROUPS

SEE MORE
www.UAT.edu/clubs

BLUEBIRDS

BlueBirds will prepare students not just for defending a network for competitions and classes here at UAT, but also for being a team member in a work environment of Information Assurance professionals. Members will develop the understanding of defending networks, instead of attacking them.

JAPANESE CLUB

The Japanese Club exists to help students discover and learn more about the Japanese language and culture, through translation, educational videos, study sessions and discussion.

GAMA CLUB

The Gama Club was developed for students who want to learn, explore and apply mathematics in a 3D game environment.

LAN

Before the internet, there was LANs. And before that, there was split-screen multiplayer. LAN Committee is the club that takes all that you love of multiplayer gaming and brings it together for one night of entertainment a month.

ROCK BAND

Rock Band Club is the central place for fans of the game to come together and play. We play Rock Band 3 exclusively and have support for all seven parts!

TCG LEAGUE

TCG League is a group that enjoys playing, learning, discussing and mastering popular trading card games (Yugioh, Magic and Pokemon). TCG League participates in local tournaments as Team UAT.

UNITY

Unity is a group devoted to embracing social differences and is an open club for all UAT members. Unity seeks to increase awareness and provide a welcoming environment where everyone is accepted for who they are.

UNPLUGGED GAMES

Learn. Experience. Play. Board games, tabletop and card games every second and fourth Saturday. All day!

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.

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 not only 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.

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!

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.

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.

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.

PAINTBALL

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.

LEARN

> IDENTIFY AND APPLY in a forensics context the various topologies, standards, technologies and protocols employed in computer systems, including file system formats and their attributes.

> EVALUATE, SELECT, DEPLOY, AND ASSESS computer forensic measures to respond to and alleviate a security incident to prevent loss or corruption of sensitive information.

> ANALYZE AND EVALUATE the current investigative and legal aspects of information and computer forensics including electronic discovery, deposition, litigation and corporate personnel processes.

EXPERIENCE

> UAT surrounds our students with a leadership presence at top security conferences designed to expose our students to the elite industry.

> The Collegiate Cyber Defense Competition (CCDC)
> DEFCON Hacking Conference

> Join FBI and Cyber Defense programs and clubs that provide interaction with federal cyber defense agents.

INNOVATE

> EVALUATE AND EXECUTE the strategies, methodologies and state-of-the-art forensics tools and techniques for the recovery of data, digital evidence and documentation on computer systems, network systems and other electronic devices.

Technology FORENSICS

Pilot the latest software and security protocols in UAT's state of the art cyber security lab funded by the Department of Defense:

> UAT provides select students a contained environment ideal for testing with segregated VLANS
> Government rated FRED Forensic Computers for data acquisition, Keypad Lockers and CISCO Equipment

UAT has been designated as a Center for Academic Excellence (CAE) in Information Systems Security Education by the US National Security Agency.

UAT's designation as a CAE means you have access to exclusive scholarships and grants only available to students who attend a university with the designation.

⚠ CLUSTERGEEK WITH CAUTION

LEARN, EXPERIENCE AND INNOVATE WITH THE FOLLOWING DEGREES: Advancing Computer Science, Artificial Life Programming, Digital Media, Digital Video, Enterprise Software Development, Game Art and Animation, Game Design, Game Programming, Human-Computer Interaction, Network Engineering, Network Security, Open Source Technologies, Robotics and Embedded Systems, Serious Game and Simulation, Strategic Technology Development, Technology Forensics, Technology Product Design, Technology Studies, Virtual Modeling and Design, Web and Social Media Technologies

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TAKE YOUR SLEUTHING TO THE NEXT LEVEL WITH A DEGREE IN TECHNOLOGY FORENSICS
WWW.UAT.EDU/TECHFORENSICS

WHAT'S HOT

HOT

GAME PROGRAMMING

James Justin
Professor: Game Programming
BS, University of California, Riverside

Unreal Engine 4. Unreal Engine 3 (UE3) and its low-cost sibling UDK have been riding a wave of popularity in recent years. Both use a world-class visual scripting system called Kismet that allows designers to build entire game levels with little or no programming help. Even though Unreal Engine 3 has been out for many years now, the visual quality of the engine can easily go head to head with the best custom-built engines out there and it utterly crushes what most middleware engines can do. Many of the top AAA titles that have come out in recent years have been built using UE3, and UDK is an attractive option for independent developers looking to get games published on the PC, Xbox360 or the PlayStation3.

NOT

Zynga. I first started in the game industry at Interplay Productions. At the time, Interplay was the #5 publisher in the world and was riding high on the popularity of the game Decent. In development was Starfleet Academy and Fallout. Either game had the potential to be the next break-out hit. Less than 10 years later, Interplay was effectively dead.

What happened? A disastrous IPO (Initial Public Offering of stock) brought the company to its knees, robbing it of much-needed development and marketing cash. Such was the case with Interplay almost 15 years ago and such is the case with Zynga today.

Before Zynga's IPO, the company was considered an amazing success story. While most games were marketed to males from 6 to 60, few games targeted women, especially women over 30. There are plenty of games targeted to girls, especially teenagers, but no one had found a way to make a game that their mom would want to play. Zynga built an empire by doing exactly that with their enormously successful Facebook games.

All that changed when Zynga went public. An IPO is considered successful when the stock value rockets much higher than the initial offering price. Zynga's executives made the same mistake that Interplay's executives did almost 15 year ago: putting too much stock on the market at once at too high a price. After the IPO, the stock nosedived and both investors and the press started to ask very hard questions about the company's business practices.

So what does that mean for someone who's not a Zynga employee? Zynga's monopoly is finished. They're still the 800 pound gorilla in the room for Facebook games, but they're not invincible. I expect few clever innovators will find a way to make Facebook and mobile games that effectively target the "mom" market, and I expect those companies will make a lot of money doing so. That market is still huge and with Zynga's current troubles, it's wide open for independent developers.

HOT

ROBOTICS & EMBEDDED SYSTEMS

RYAN MEUTH
Professor: Robotics & Embedded Systems
PhD, Missouri University of Science and Technology

The DARPA Robotics Challenge – in 2014 companies and universities will compete to build a humanoid robot that is able to perform search and rescue functions in dangerous environments. The tasks include driving vehicles, navigating disaster areas, and performing tasks like demolition and manipulating machinery. This version of the scary-cool PETMAN robot (www.bostondynamics.com/robot_petman.html) will serve as the standard platform for the competitors.

NOT

The DARPA Robotics Challenge will greatly accelerate the robot uprising. Stock up on EMPs!

For more on what's hot
visit www.UAT.edu/whwn

WHAT'S HOT

HUMAN-COMPUTER INTERACTION

Vesna Dragojlov

Associate Professor: Algorithmic Art, Advanced Photoshop, Multimedia Theory, Principles of Interactivity, 2D Computer Arts, Flash
BA, University of Novi Sad; MA, University of Belgrade; MA, University of Denver

This year's World Usability Day was sponsored and hosted by PayPal in their offices in Scottsdale, Ariz., on November 12, 2012, with the focus on usability of financial systems. "It is about making our world work better, and 'making life easy' and more user friendly." Technology today with its rapid development has become increasingly more complex and more difficult to use. Technologies that seep into many aspects of our lives have to be humanized, that is, have to be developed in such a way that serves users first. That's why UI/UX designers play a huge role in any successful company. PayPal had the honor of being part of the usability day celebration. Their senior director of UI/UX design, Rick Tilghman, gave an inspiring presentation titled "Designing the Future of Money." Not only was he able to explain in interesting terms the critical role of designers in making sure that products work for people first, but was also able to connect the topic with other issues of user's needs in the mobile world in very inspiring ways by referencing real-world scenarios. He also talked about the urgency and tight timeframe that all companies must face when designing new products because of the competition. They recently acquired a smart board which allows them to quickly share ideas with their stations internationally and complete the design cycle with prototyping and iterations with much less time.

What was most important to me was the feedback I got from two of my HCI students who also attended the event. They have heard from the people in the industry about the principles and cycles of design processes that they have been learning in their HCI and design classes at UAT.

www.slideshare.net/theomandel/rick-tilghman-paypal-arizona-world-usability-day-2012-ux-keynote-presentation

www.worldusabilityday.org/events/2012

WHAT'S NOT

Microsoft's new Windows 8 has been under close scrutiny by many professionals since its inception. The decision to take this major leap in the UI design of their new product has been quite bold and in my view, not without risks. Among many critics, Jakob Nielsen, a usability guru, has found their new operating system difficult to use. One of his major issues is the choice that was given to the users between a tablet-type start menu and the traditional desktop menu screen. "The two environments work differently, making for an inconsistent user experience" he said. This observation can make or break new products. Sometimes when users are provided with many choices and if those options work differently, it can only create confusion and frustration, which can end in the failure of the product. It has yet to be seen how Windows 8 will be widely adopted.

do you know...

What's Hot and What's Not? If so, let's hear it!
Email us at whwn@uat.edu

WHAT'S HOT

ADVANCING COMPUTER SCIENCE

PHILL MILLER

Associate Professor: Systems Development
BA, Arizona State University; MBA, North Central University

1) Learning to code—in the age of ubiquitous computers, it's the new literacy

2) Moore's Law and its variations and consequences—25-GPU cluster cracks every standard Windows password in under 6 hours (arstechnica.com/security/2012/12/25-gpu-cluster-cracks-every-standard-windows-password-in-6-hours/)

3) Raspberry Pi—the new home brew

WHAT'S NOT

1) Silverlight vs. Flash—Who cares when we have HTML5 + CSS3 + JavaScript.

2) Things with wires attached to them—Cords, cables, wires, and plugs have got to go, and the sooner the better.

3) Python 2.X—Can we please just move on already?

www.uat.edu/acs

Master the ghost in your machine

LEARN

- > ANALYZE, DESIGN, BUILD AND TEST software systems in a team environment using industry standard software engineering processes encompassing all phases of the software lifecycle to solve them.
- > DEMONSTRATE the ability to choose the most appropriate programming languages, standards and technologies to meet the requirements of specific projects and communicate these decisions clearly in written and oral forms.
- > INVESTIGATE AND DEVELOP applications for new code architectures, such as distributed computing and neural networks.

EXPERIENCE

- > ATTEND, PARTICIPATE AND NETWORK at the industry leading conferences UAT's ACS students attend.
- > PLUG INTO our unique campus culture and feel the pulse of 1,000 students all focused on advancing technology.

INNOVATE

- > INTEGRATE new programming languages into application development, focusing on the strengths of these new languages over current languages and practices in software development.
- > DEVELOP within a Context Driven Architecture (CoDA) to build applications that provide what is needed to the user when it is needed.
- > ANALYZE within a new software development paradigm, such as but not limited to scrum, agile, or extreme programming.

Students of the Advancing Computer Science program begin programming on day one.
UAT teaches over 14 languages including C3, .Net, C, C++, Java, Python, Ruby, JavaScript and F#.

⚠ CLUSTERGEEK WITH CAUTION

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MEET MORE FACULTY
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ANGEL FUENTES

Professor: Astronomy I and II
MS Physics/Astronomy Minor, Arizona State University
BS Theoretical Physics, University of Puerto Rico

Since seventh grade when he became mesmerized by an astronomy book in a library in Puerto Rico, Professor Fuentes has had a passion for everything galactic. With years of experience that includes conducting astronomy open houses to enhance community awareness and working as a teaching assistant at ASU, he engages UAT students in solar system astronomy, stars, galaxies, cosmology, Neutronian Physics, electricity and magnetism, physic,s for games, and green technology—all of which apply to help digital video and game programming students develop more realistic effects.

"UAT's learning environment is a unique place to interact, network and develop each student's passion. I enjoy when students challenge me with questions."

MICAH CHABNER

Professor: English, Literature, Creative Writing
MFA in Literature, English, American Literature, Boston College
BA in English Literature/French minor, Cal Poly

Born in San Diego, Professor Chabner has more than eight years of collegiate teaching experience fueled by her lifelong passion for books and literature. She taught at several community colleges in San Diego as well as at San Diego State University before arriving at UAT. Her classes include Grammar Development, Composition, Creative Writing and literature focusing on Tolkein, King Arthur, Dune, and Horror fiction. Furthermore, she is creating a Game of Thrones class. Fun Fact: She's the faculty advisor for UAT's APS (Ghost Hunting) Club.

"I love UAT's environment where you can be so outside the box. That's the biggest difference and why I'm still here. Giving students a chance to explore is how they learn."

JAMES JUSTIN

Professor: Game Programming
BS in Computer Science, University of California, Riverside

Professor James Justin has always had a goal to be in the game industry. With a total of 15 years of game development experience, he's worked independently as a solo developer and at companies such as THQ Digital and Interplay Productions. His background includes engine programming, game play and AI programming, and he has served as lead or senior programmer on many games (*NFL Blitz, Spyro,* and *Ratchet and Clank* to name a few). Fun Fact: He loves math and science and can easily spend hours discussing a complicated math-intensive algorithm or theoretical physics.

"Here, we teach the science and the art of game programming together. And, we're in an environment where we're proud to be geeks."

UAT UNIVERSE OF DEGREE PROGRAMS

Programming
graduate
Advancing Computer Science
The ability to diagnose a programming need and apply a matching methodology using new computer science technologies to create solutions
undergraduate
Advancing Computer Science
online
undergraduate
Enterprise Software Development
Developers whose specialty is in developing software data and web solutions needed and used by organizations
undergraduate
Open Source Technologies
Programmers who are skilled in the tools of the open source community and can apply them to create innovative and evolving solutions
Applied Digital Science
Implementers of the hardware and software used to create mobile and embedded robotic systems
undergraduate
Robotics & Embedded Systems
Designer of complex, but intuitive computer interfaces that ensure a positive, productive experience for the user
undergraduate
Human-Computer Interaction
undergraduate
Network Engineering
The architects of network systems that link business process both physically and digitally
graduate
Emerging Technologies
Forecasters who can examine technology trends and apply this analysis to future planning
Digital Arts & Technology
undergraduate
Virtual Modeling & Design
online
Technology artists who apply digital tools, with an eye for design, to create media and interfaces
undergraduate
Digital Video
Innovatively applying the skills of directing, production, composition and writing with digital tools and techniques to create films and effects
undergraduate
Digital Media
Modeling of data in virtual 3D spaces to create simulations, animations and entertainment media
Digital Security
graduate
Information Assurance
Protects organizations and individuals by designing and deploying systems and processes that ensure data and networks are safe from intrusion and failure
undergraduate
Network Security
online
DECIDE WHICH ONE
IS RIGHT
FOR YOU
Please see www.uat.edu/fastfacts for the latest information about degree program performance, placement and costs.

A P33K INSIDE THE

G33KOSYSTEM

Microsoft Surface

Innovative Tools
The UAT Technology team is investing heavily in cloud services so students can access software from anywhere in the world.

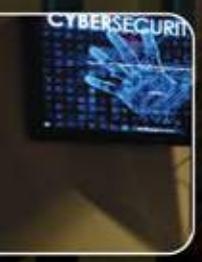
Latest Technology
The University now gives students access to the latest in game development and human-computer interaction through the EMOTIV.

Emotiv Headset

Updated Workstations
The University deploys enough workstations for local system usage for all users. One-third of them on-campus are replaced each year. These workstations have a minimum of 4GB of RAM (about a third of the workstations have 6GB of RAM), Nvidia video cards, and connect to the server environment with a 100MB switched Ethernet connection.

When necessary, the University deploys additional, specialty workstations for specific uses. Above you can see the Emotiv Headset; to the right, a PlayStation 2 TOOL development workstation; and at lower right, a 3D printer that copies and builds three-dimensional models.

PS2 TOOL

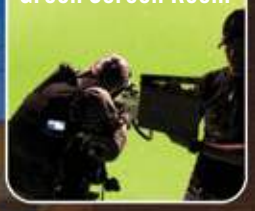


The University's data center contains more than 60 physical servers and more than 30 virtual servers dedicated for production and student use.

M

We call ourselves University of Advancing Technology and we're quite serious about that, especially the Advancing part. The University's mission is "To educate students in advancing technology who innovate for our future." **It would be impossible to innovate the future if our own technology on campus was not constantly upgraded.** Here's a behind the scenes peek at just the most recent upgrades to the geek's playground we have created for UAT students.

Green Screen Room



Remote Virtual Desktop

Whether they're a mile down the road or thousands of miles away, UAT's online students have the best view. Not of the campus....but of their online classes, programs and files. Thanks to UAT's high tech, high touch focus on the student experience, VMware View technology now makes it possible for online students to have complete, secure access to UAT's resources from a virtualization platform built to deliver the entire desktop, including the operating system, applications and data with unmatched quality, speed and security.

With rich media capabilities, VMware View provides UAT students the freedom to connect with a virtual desktop from a wide range of devices such as laptops, desktops and mobile devices. There is no lag during access, because this virtual technology is equipped with its own security on an independent software server. Over the LAN and WAN, VMWare View adapts to the end user's network connection to provide a customized desktop experience that adapts to today's on-the-go lifestyle.

The Cyber Cave

"The Cave" is the new Cyber Security Electronic Classroom where students test tomorrow's information assurance technology.

3D Printer

Log on to **www.uat.edu/g33kosystem** to get the skinny on the latest advances around the UAT campus.

MEET THE STAFF

MEET MORE STAFF
www.uat.edu/staff

Marketing Specialist
BS, Arizona State University

AARON TREGUBOFF

Originally from Buckeye, Ariz., Aaron earned a bachelor's degree in business and marketing, graduating with honors from ASU's School of Global Management and Leadership. Well connected to the pulse of UAT, Aaron is responsible for social media marketing, digital marketing and some traditional marketing. He takes event photos, videos, interviews students, organizes website content and more.

"I have learned a lot from the students here just by talking to them. I love the family atmosphere and being able to know all staff and most of the students."

Librarian
BSN, Arizona State University
MLS, University of Arizona
Mesa Community College

NANCY RECKARD

Nancy's love for learning and insatiable curiosity is a best fit for UAT. Her science-related degrees include a Master of Science in Library Science. Born in Fall City, Neb., Nancy is among the "must-get-to-know" UAT staff. She manages the Circulation Desk and catalogues, orders new items for the library, conducts research for new materials and generates reports. She also oversees electronic equipment loans, and manages both the physical library and online databases.

"The best part of UAT is the students and my interaction with them. They're very enthusiastic with a tremendous thirst for knowledge."

Career Services Advisor
BS, Charleston Southern University

JOEL WALTON

Joel develops relationships with employers locally, nationally and internationally to help students find jobs, internships and contract positions. He calls himself a confidence coach, helping them feel confident in marketing their skills to employers. He and his team's efforts are working; the most current job placement report indicates the highest rate at 80.26%. Joel also is enrolled as a student himself in Network Security/ Engineering programs.

"What really sparks my enthusiasm here is our synchronic learning model that combines traditional learning with comprehension teaching models and real-world experience. UAT students are more ready for the real world and hit the ground running."

UAT DEGREE PROGRAMS

ON-CAMPUS PROGRAMS

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

- Advancing Computer Science
- Artificial Life Programming
- Enterprise Software Development
- Game Programming
- Human-Computer Interaction
- Network Engineering
- Network Security
- Open Source Technologies
- Robotics and Embedded Systems
- Strategic Technology Development
- Technology Forensics
- Technology Product Design
- Technology Studies
- 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
- Serious Game and Simulation
- Virtual Modeling and Design

MASTER OF SCIENCE

Master of Science degrees are available on-campus or online 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:

- Advancing Computer Science
- Game Programming
- Network Security
- Technology Forensics
- Web and Social Media Technologies

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

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If you think you're geeked enough to explore further, there's more information of the extreme social kind. Connect with UAT's vast social network for all the action. Cool new developments, photos, videos, demos, activities and much more can be found on:

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www.uat.edu
UAT is a unique, technology-infused NCA-accredited private university that was founded by a techno-geek for techno-geeks. Our mission is to educate students in advancing technology who innovate for our future.

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

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.

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

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Please see www.uat.edu/fastfacts for the latest information about degree program performance, placement and costs.