

ISSUE 12
SPRING

GEEK 411



ADVANCING TECHNOLOGY STUDENT LIFE MAGAZINE

Hacker

New Cyber War Ammo 03



heroes

in Zero

days

Zombie X-Trainer 25

Survival of the Fittest

Women of Tech 45

Take Your Place

Oculus Rift VR 53

Is It Real or Oculus?

SPRING \$6.95

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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, Business Technology, Digital Maker and Fabrication, 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, Technology Forensics, Technology Studies, Virtual Modeling and Design, Web Design

Prepare to Defend!
www.networksecuritydegree.com

Program accreditations, affiliations and certifications:



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45. WOMEN IN TECH Take Your Place



53. OCULUS RIFT VR Is It Real or Oculus?

U2 EVENTS

LEARN MORE
www.uat.edu/events

TECHNOLOGY FORUM 2015

WELCOME TO TOMORROW

www.uat.edu/techforum
Tempe, AZ
OCTOBER 22-24, 2015

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

One of the best times to come see the campus!
Go to www.uat.edu/techforum to register.

TECH-TREK

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

June 27, 2015
July 31, 2015
(Friday, 1-5pm)
October 24, 2015

www.uat.edu/techtrek
Tempe, AZ

ARE YOU GEEK ENOUGH?

DEFCON

www.defcon.org

Las Vegas, NV

August 6 – 9, 2015

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

TECHNO SECURITY AND DIGITAL INVESTIGATIONS

Conference

www.technosecurity.com
Myrtle Beach, CA (May 31 – June 3, 2015)

ZERO DAYS

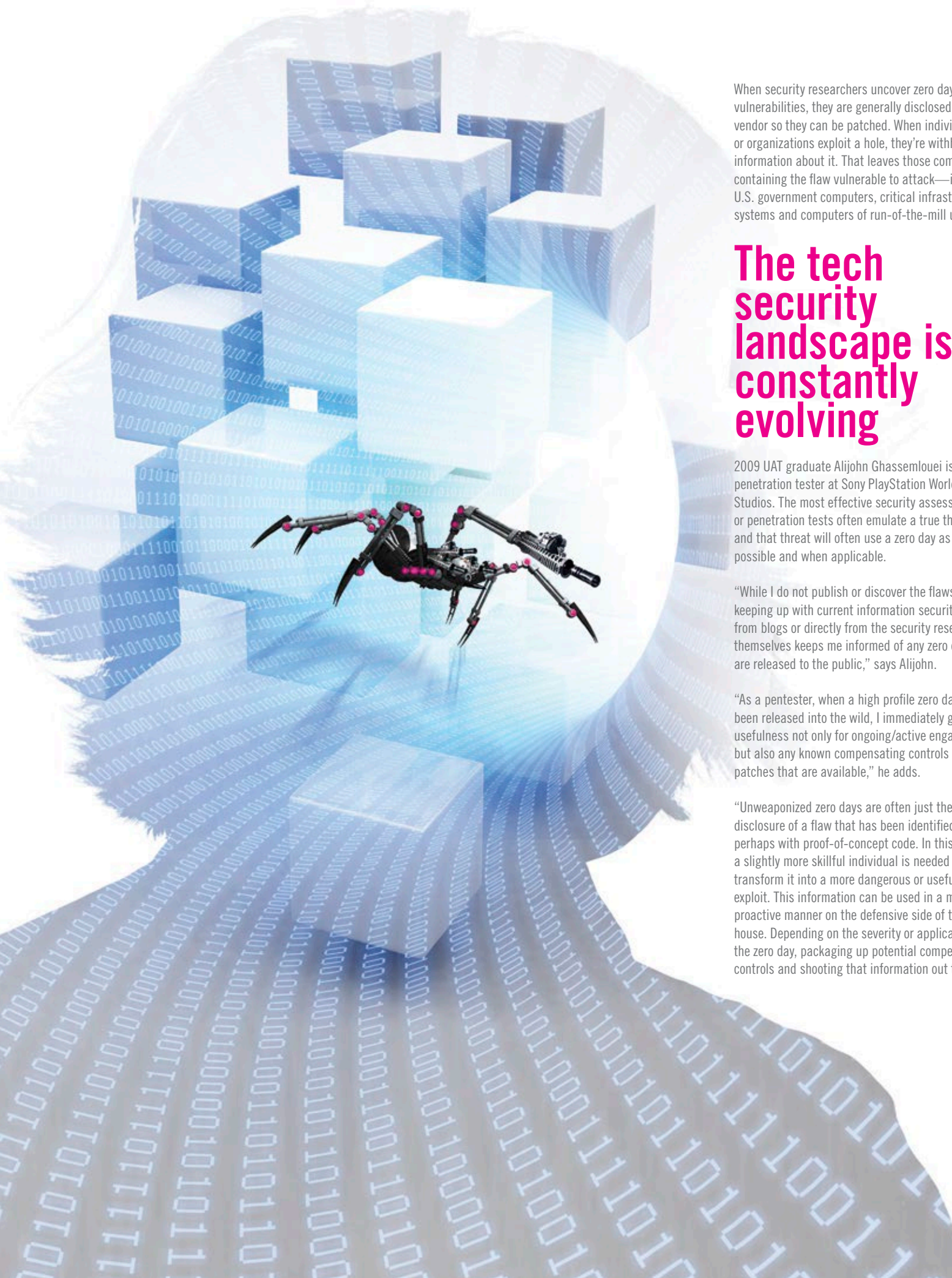
The New Cyber War Ammo

Even as the Internet becomes more social, below the surface is another side rarely seen by the public where private companies, law enforcement, criminals, the military and many international intelligence agencies are engaged in ongoing, low-level cyber warfare. In 2013, IBM's security division reported that the average American company fielded 16,856 attacks.

Among the munitions are software vulnerabilities known as zero days. As the information age results in more data stored electronically, a complex global network is growing along with its vulnerabilities. This creates more opportunities to protect and defend our global information systems. Zero days are used by cyber warriors such as the ones working for the NSA and the U.S. Cyber Command. But they're also being used by nation-state spies and criminal hackers.

Zero days are discovered in various ways. There are companies with security researchers who search for zero days in their own systems and fix them before others can find them. The Bug Bounty program is actually a deal offered by many websites and software developers (Facebook, Yahoo!, Google and others) in which individuals can be compensated for reporting vulnerabilities. This program allows developers to discover and resolve bugs before they become public and incidents of widespread abuse occur. Then there are private companies, such as Exodus Intelligence, that are becoming zero day arms dealers and selling them to clients.

more >



When security researchers uncover zero day vulnerabilities, they are generally disclosed to the vendor so they can be patched. When individuals or organizations exploit a hole, they're withholding information about it. That leaves those computers containing the flaw vulnerable to attack—including U.S. government computers, critical infrastructure systems and computers of run-of-the-mill users.

The tech security landscape is constantly evolving

2009 UAT graduate Alijohn Ghassemlooui is a senior penetration tester at Sony PlayStation World Wide Studios. The most effective security assessments or penetration tests often emulate a true threat and that threat will often use a zero day as soon as possible and when applicable.

"While I do not publish or discover the flaws, keeping up with current information security news from blogs or directly from the security researchers themselves keeps me informed of any zero days that are released to the public," says Alijohn.

"As a pentester, when a high profile zero day has been released into the wild, I immediately gauge its usefulness not only for ongoing/active engagements but also any known compensating controls or patches that are available," he adds.

"Unweaponized zero days are often just the disclosure of a flaw that has been identified, perhaps with proof-of-concept code. In this form a slightly more skillful individual is needed to transform it into a more dangerous or useful exploit. This information can be used in a more proactive manner on the defensive side of the house. Depending on the severity or applicability of the zero day, packaging up potential compensating controls and shooting that information out to the

rest of the organization or the public Internet is done without a doubt. Weaponized zero days are vulnerabilities that are published with functioning exploits can be used immediately and by a broader, less skillful audience."

Alijohn served as an adjunct associate professor in UAT's Securing a Network course. He has also worked at various federal government agencies prior to moving over to the commercial sector.

"What's great about UAT is they provide the environment for students to analyze and actively use these zero days in a more responsible and safer manner," he adds. "Faculty and other students will not only help configure the environments, but also coordinate and even actively walk through (hands on) the entire attack beyond just theory."

There's never been a more critical time for skilled specialists like Alijohn to enter the workforce and be digital citizens. UAT's cyber security graduates represent the elite leaders who are prepared to take on the ever evolving world of online theft and corruption of information with the knowledge they need to become more responsible and level headed hackers who protect, defend and innovate network security.

UAT is committed to digital citizenry in all degree programs including the prestigious cyber security degrees in Information Assurance, Network Engineering, Network Security and Technology Forensics.

Armed for battle

These degrees combine essential and best of class elements of software and network programming and network security analysis, designed around the contemporary skills and advanced industry-standard tools associated with security for information network technology initiatives.

"We are training our students to understand how to find holes, pinpoint the problem and think of innovative ways to fix them," says Professor Russ Rogers, UAT's Network Security program champion. It takes an up, down, sideways, offensive and defensive approach to learning."

"It takes an up, down, sideways, offensive and defensive approach to learning."

Not to mention UAT's state-of-the-art cyber security cave offering a unique, high-tech, real-world learning space.

"If students are going to be good at this and be effective hackers, they need to look at problems from different perspectives and think out of the box," explains Professor Rogers. "The tech security landscape is constantly evolving, with new challenges emerging every day. That's why we encourage proactive thinking and foster digital citizenry throughout all of our cyber security coursework. And that means talking about zero days."

"In my network security classes, we talk about the ethical use of zero days all the time; it's not something we mention here or there or just in one class," says Professor Al Kelly. "It's an important subject because students need to know all aspects of the network security field."

UAT's curriculum must remain leading edge in order to empower students to be innovative thinkers. That why UAT continually infuses their curriculum with the most current knowledge to provide students with a real-world education that helps them hit the ground running.

In fact, UAT is in the process of developing three new classes just to address computer bugs and their ethical use:

- > Programming for Hackers gives students an understanding of the programming languages that are most often used.
- > Reverse Engineering is part of the software testing to find and define the problems. This course takes the concept of running an application within a sandbox so we can see all the program and system calls that are made and know where to inject malicious code.
- > Exploit Writing covers all types of exploit writing concepts.

It takes more than innovation at UAT to nurture successful tech security professionals.

Cyber warriors are ruled by real world education

"UAT has its finger on the pulse of what the landscape is, what's needed in the industry and what lies ahead," says Professor Rogers. "We're meeting a critical need for more tech security professionals, because there simply aren't enough people to meet the exploding demand and innovate solutions."

He's right on. More than 100,000 people with the right technology skills and degrees are needed each year to defend our country's online data. That number most likely will grow.

With UAT offering 25 of the top advancing technology degrees available, including elite network security and tech forensics programs, the technology university plays a pivotal role in educating premier students to take their place in the industry. And we're not the only ones who think so. UAT's highly respected curriculum is recognized by the industry and government alike. Designated as a Center for Academic Excellence in Information Systems Security Education by the U.S. National Security Agency, UAT's cyber security degree for ethical hackers empowers graduates to earn the tech respect they desire to innovate for our future.

"Graduating students often leave with both the real-world defensive and offensive capabilities far beyond not only their counterparts entering the field, but also some existing security professionals as well."



PATENT YOUR FUTURE: DIGITAL MAKER AND FABRICATION DEGREE PROGRAM NOW ENROLLING

The emerging industry of digital maker and fabrication is as big as the personal computer was and is as game changing as the Internet.

UAT students have the power to become the inventor they are meant to be with UAT's Bachelor of Science in Digital Maker and Fabrication degree, the first fully accredited program of its kind in the nation. That means ideas are transformed into fabricating a working model that will change something for the better.

Designed for future digital inventors, product design specialists or digital makers and fabricators, this groundbreaking Digital Maker and Fabrication degree is currently enrolling.

Upon completing your Digital Maker and Fabrication degree, students will also file for a U.S. patent as part of their graduation requirements. They will learn to take an idea from concept to prototype, secure patent protection for their innovation and how to raise start-up venture capital. They'll benefit from exclusive campus-wide, open-access to all tech labs on campus—from day one.

By the time students complete this Digital Maker degree program, they will have what it takes to succeed in many emerging areas of advancing technology. That's because UAT's Bachelor of Science in Digital Maker and Fabrication prepares them well by combining engineering, robotics and embedded systems, tech product design,

virtual modeling, human-computer interaction, artificial life programming and software development.

Seize this unprecedented opportunity to become among the first advancing technology leaders who one day will run, innovate and lead our country's next industrial revolution.

For more information about UAT's digital maker and fabrication degree program, and to submit the application, visit www.uat.edu/DMF

LEAD THE BUSINESS TECH EVOLUTION



In recent years, the field of business technology has grown rapidly in conjunction with advances in technology, new business models, regulatory issues, development methodology, managing cross functional and international teams, strategic management, innovation and "go-to-market strategies" this creating a demand for these dynamic cross functional skills.

UAT's Business Technology program is now enrolling. This cutting-edge degree is designed to prepare students for top jobs in today's technologically oriented business world. With a dynamic and synergistically chosen curriculum, students learn a unique combination of technical, strategic, critical, financial, analytical and managerial skills.

These are the tools needed to excel in such high-demand areas as strategic management, global business, innovation, technology product development, and project management in startup, private and public sector firms.

Students apply and integrate this knowledge within a variety of actionable and real world functions. Graduates gain the knowledge to lead a team and interact with programmers, project management, database designers and engineers. They develop the comprehensive skills necessary to navigate a clear course, making sound judgment calls on future technology developments and becoming adept at creating a culture of innovation. Visit us at

www.uat.edu/business-technology-degree

TOP 10 FEEDS FROM OUR FACEBOOK

1. The film, *Legends from the Sky*, an action packed indy sci-fi adventure, shot many of its scenes at the University's campus.
2. UAT alum, Tyler Coleman, made it on Forbes, 2015 "30 Under 30" which features the brightest stars who are moving minds, markets and a new generation into the future.
3. UAT is once again, hosting the 2015 AvNet Tech Games. Registration is now open so join us at UAT campus for the AvNet 10th anniversary competition on Saturday, April 11th
4. UAT hosted its semesterly Game Project Job Fair in January to aid in recruiting UAT talent for the various game projects that are always in the works on campus.
5. Network Security and Web Development make the list of best jobs for 2015!
6. The Digital Video program's long-in-development film *Ouroboros* made its world premier at the 40th annual Boston Sci-Fi Film Festival in February.
7. UAT staff member, Dr. Marianne Langner was the engineer who designed Paul Rosalie's suit for Discovery Channel's "Eaten Alive" where he was swallowed by an anaconda.
8. The New Technologies Lab is in full swing! Check out photos at UAT's Facebook page.
9. Digital Video graduate Client Corner hosted the Enfogrow Toddler Bowl on the TLC channel, Discovery Life channel, and Discovery Family channel.
10. Digital Video graduate Erica Faccone has accepted a job as an editor at ABC affiliate KVUE-TV in Austin, TX.

Go to www.facebook.com/UAT to feel the feed

DEFCON HACKING CONFERENCE

Hacker enthusiasts, unite! Your DEF CON experience awaits Aug. 6-9 at the Bally's and Paris hotels in Las Vegas! We hope to see you there!

This year's DEF CON will be even more hack-elicious. Approximately 30 contests and events (official and unofficial) are planned, including DEF CON's online Hacker Jeopardy, Capture the Flag, Beard & Moustache Competition, Crack Me If You Can, and the Network Forensics Puzzle Contest. Presentations include Protecting SCALA from the ground up; DEF CON 101,

the Talk; Building an Effective Security Program, Data Protection 101, and more.

Stop by the UAT booth too and see our awesome technology display that highlights our cyber security programs and Cyber Security Cave. UAT has been designated as a Center for Academic Excellence in Information Systems Security Education by the US National Security Agency.

The best way to get good at Capture the Flag is by playing CTF games, learning what the experience is like, becoming

familiar with the flow for solving challenges and writing exploits, and documenting your process. Your road to Vegas, no matter how long it is, starts with competition.

For more information about the event and pre-qualifying competitors for DEF CON Capture the Flag 2015, visit www.defcon.org



UAT @ Defcon 2014



INC. 5000

“What I learned at UAT has helped me make these companies better and stay on the cutting edge,” says Brian. “Among these things is my ability to learn how to learn, one of the most important skills you can have.”

UAT alum Brian Bonfiglio can now add award-winning tech entrepreneur to his long list of accomplishments. As founder and CIO of Base Commerce, he and his partners were recently presented the prestigious Inc. 500 award from Inc. 5000 for building one of the fastest growing privately held companies in America. Started in 2011, they grew the company to \$1 million the first year, and to an impressive \$12 million within two years. The company is #23 on the list nationally, and also #3 on the list of financial services in Arizona.

Base Commerce is a PCI Level 1 certified credit card payment platform offering unique products and services to help clients secure cardholder data and deal with threats in payment processing environments.

A funny thing happened on the way to being a leader and innovator in his field. It was called opportunity—the opportunity that Brian’s good education at UAT aptly provided.

A 1999 graduate in Digital Animation Production, Brian gained lots of real world experience in software and web development, not only in his classes but also as an intern in UAT’s IT department and then as a full-time employee there after he graduated. He later earned his

Master’s degree in Computer Information Systems from University of Phoenix.

Hailing from Battle Creek, Mich., Brian grew up with computers, and in high school took the only CAD class they had at the time. When it came time to seek out a technology college, UAT was a top choice and he moved to Arizona.

In 2001, he joined First American payment processing (now Check Gateway) doing electronic check payment processing. The Phoenix based company serves as the gateway between online merchants and financial institutions, providing auto debit and check clearing capabilities to clients such as Massage Envy, IBM and more. For two years, Brian worked in IT and was promoted to IT manager. He designed, built, and maintained numerous software applications, as well as the network infrastructure, and had the vision to take it in a new direction.

Impressive, to say the least. So it came to Brian’s surprise one day when he was called into the owner’s office. What had he done wrong? In fact, the owner wanted to speak with Brian to offer him, along with another employee, the opportunity to buy the company. Brian’s education and experience made him the clear choice.

Brian seized another opportunity recently to provide a much needed service to merchants. With a partner, he developed Base Commerce as a separate company serving as the credit card equivalent to Check Gateway. The tremendous success of Check Gateway made it possible for Brian to transition full time to Base Commerce. His responsibilities at Base Commerce are similar to those leading Check Gateway—to support the business by knowing and implementing today’s technology. That means keeping on top of and ahead of the fast-paced world of technological change.

BRIAN BONFIGLIO

When asked who his mentor was at UAT, he’s quick to say Jason Pistillo, UAT’s president. Back in the mid ‘90s, he was the IT manager and Brian’s boss when he worked there prior to being named president.

“I always saw him as a mentor and role model because of his IT knowledge and skills,” says Brian.

“Brian is a fine example of just how far UAT’s education can take you,” says President Pistillo. “At UAT, we’re focused on the development of each student’s job and life skills. Learning how to learn is an important part of our culture and Synchronic Learning model, because learning is a continual process, well beyond graduation. Technological change swirls around us, so learning to stay on top of it, and ahead of it, helps you continue to grow and be a true innovator of advancing technology.”

Brian believes so much in the value of his UAT education that he looks there first for qualified students and graduates for internships and jobs at Base Commerce and Check Gateway. In fact, he has employed and partnered with at least five UAT graduates.

“We find UAT students to be the most talented from the skill pool out here in Arizona.”

Brian not only is a successful entrepreneur but also a devoted family man. With wife Melissa they have two daughters, Jaycee, age six, and Saylor, age four.

“It’s the experience and time I spent at UAT as both a student and an employee that has helped me thrive and grow to where I am today,” says Brian.



The evil pirate captain
Black Water Bill
has stolen your treasure
and it's your chance to reclaim it.



The evil pirate captain Black Water Bill has stolen your treasure and it's your chance to reclaim it.

That's the objective of the new multi-player game *Booty Bandits*, the Student Innovation Project of Game Art and Animation major Michael Densmore. A gang of pirates want fame and money and are searching for pirate booty in this cell shaded side-scrolling brawler game (with Parallax background function) designed for the PC using Unity 3D.

The game was developed in UAT's Game Studio as part of Project Greenlight. Approximately 30-40 students are involved, all from UAT. Each player fights as a member of a pirate crew through a series of events and levels in the game to reclaim the treasures that were stolen from them and reclaim their lovable wenches.

The team wants to improve upon traditional cartoon styled games, utilizing cell shading and textures in a 3D world.

"What really sets this game apart from the others is the western styled cartoon approach that one would not normally see in today's games," says Michael, a senior who hails from Littleton, Colorado. "It's more of a mixture of lost traditions and styles to create a unique game for players to experience."

The game will be released for the PC on Steam and the team's ultimate goal is to release on Xbox Live Arcade.

The game was selected by UAT's Green Light Committee for sponsorship this year, which means the team is provided added resources to develop it and take to GDC in the spring.

Relative to competitors, *Booty Bandits* showed the strongest combination of well-defined art direction, existing student involvement, passion and appropriate scope. The committee reviews submissions from students each year and evaluates how well developed the idea is and the technology behind it.

Mike's team includes environment artist and UI developer Nicholas Vaden (Game Art & Animation), designer Juan Vilella (Game Art & Animation), programmer Ryan Taite (Game Programming and Advancing Computer Science), programmer Darryl Sterne (Game Programming), and programmer Dayln Means (Game Programming) and designer Paul Savageot (Game Art & Animation). Plus about 25 others who provided support, including UAT professors.

Michael credits professors Lynn Understiller, Jorge Portillo, Matthew Marquit, Derric Clark and Stephen Campbell for their guidance as industry veterans to develop the game's innovation that resulted in a successful game project.



Team Members



Ashley Donovan



William Kelsbaw



Darryl Sterne



Nathan Clark



Mike Densmore



Serena Jenkins



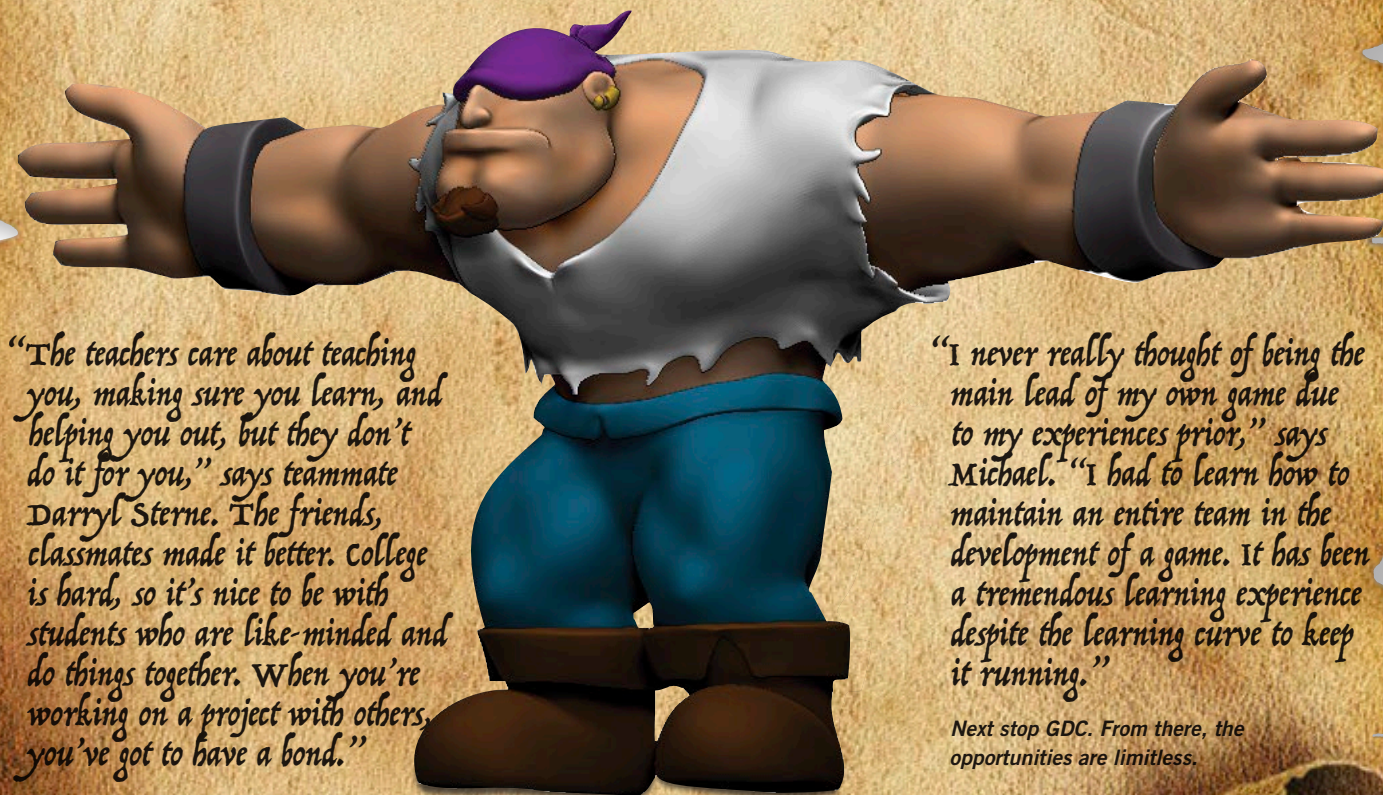
Juan Vilella



Jacob Gernand



Paul Savageot



"The teachers care about teaching you, making sure you learn, and helping you out, but they don't do it for you," says teammate Darryl Sterne. The friends, classmates made it better. College is hard, so it's nice to be with students who are like-minded and do things together. When you're working on a project with others, you've got to have a bond."

"I never really thought of being the main lead of my own game due to my experiences prior," says Michael. "I had to learn how to maintain an entire team in the development of a game. It has been a tremendous learning experience despite the learning curve to keep it running."

Next stop GDC. From there, the opportunities are limitless.

WE'RE COMING TO A TOWN NEAR YOU

DID YOU KNOW

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



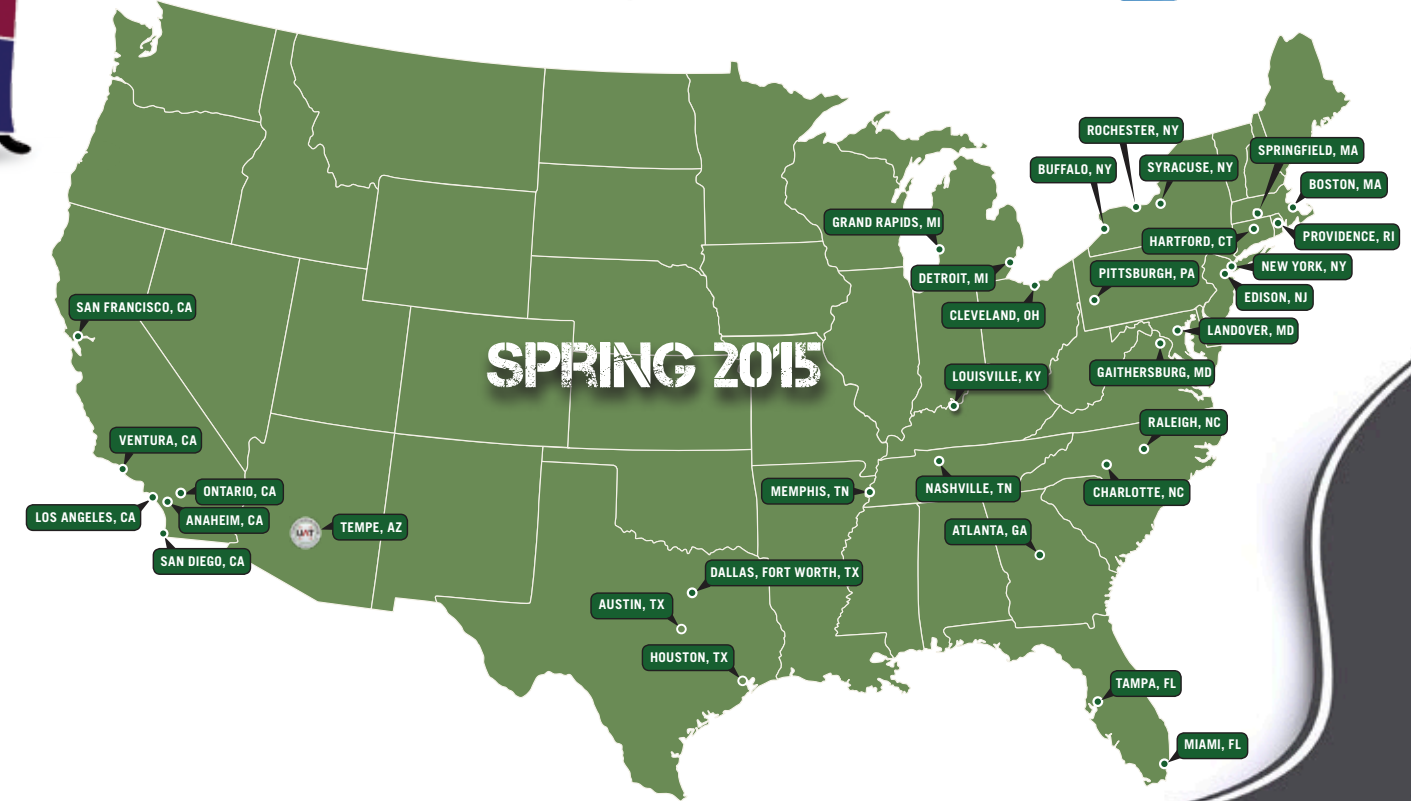
Pittsburgh National College Fair	David L. Lawrence Convention Center Thursday, February 5 / Friday, February 6
Houston National College Fair	NRG Center (formerly Reliant Center) Thursday, February 12
Louisville National College Fair	Kentucky Exposition Center Saturday, February 21
Miami National College Fair	DoubleTree by Hilton Miami Airport Convention Center Sunday, February 22
Greater Memphis National College Fair	Agricenter International Tuesday, February 24 / Wednesday, February 25
Tampa National College Fair	Tampa Convention Center Sunday, March 1
Charlotte National College Fair	The Park Expo and Conference Center Sunday, March 8
Greater Raleigh National College Fair	Raleigh Convention Center Tuesday, March 10
Syracuse National College Fair	SRC Arena, Onondaga Community College Thursday, March 12
Rochester National College Fair	Rochester Riverside Convention Center Sunday, March 15 / Monday, March 16
Buffalo National College Fair	Buffalo Niagara Convention Center Wednesday, March 18 / Thursday, March 19
Atlanta National College Fair	Georgia International Convention Center Sunday, March 22
Hartford National College Fair	Connecticut Convention Center Wednesday, March 25 / Thursday, March 26
Metro Detroit National College Fair	Suburban Collection Showplace Monday, March 30 / Tuesday, March 31
West Michigan National College Fair	DeVos Place Wednesday, April 1
Dallas / Ft. Worth National College Fair	Irving Convention Center at Las Colinas Monday, April 6
Austin National College Fair	Austin Convention Center Tuesday, April 7
Boston National College Fair	Boston Convention & Exhibition Center (BCEC) Thursday, April 9 / Friday, April 10
Columbus National College Fair	Greater Columbus Convention Center Saturday, April 11
Cleveland National College Fair	Cleveland Convention Center Sunday, April 12
Springfield National College Fair	Eastern States Exposition (The Big E) Sunday, April 12 / Monday, April 13
Providence National College Fair	Rhode Island Convention Center Tuesday, April 14
Omaha National College Fair	CenturyLink Center Omaha Saturday, April 18
New York National College Fair	Jacob K. Javits Convention Center of New York Sunday, April 19
Ventura/Tri-County National College Fair	Ventura County Fairgrounds Monday, April 20
Montgomery County National College Fair	Montgomery County Agricultural Center Tuesday, April 21 / Wednesday, April 22
Inland Empire National College Fair	Ontario Convention Center Wednesday, April 22
New Jersey National College Fair	Meadowlands Exposition Center at Harmon Meadow Wednesday, April 22 / Thursday, April 23
Prince George's County National College Fair	Prince George's Sports and Learning Complex Friday, April 24
Nashville National College Fair	Music City Center Sunday, April 26
Orange County National College Fair	Anaheim Convention Center Sunday, April 26
San Diego National College Fair	San Diego Convention Center Tuesday, April 28
Greater Los Angeles National College Fair	Pasadena Convention Center Thursday, April 30
San Francisco National College Fair	Cow Palace Arena Saturday, May 2

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



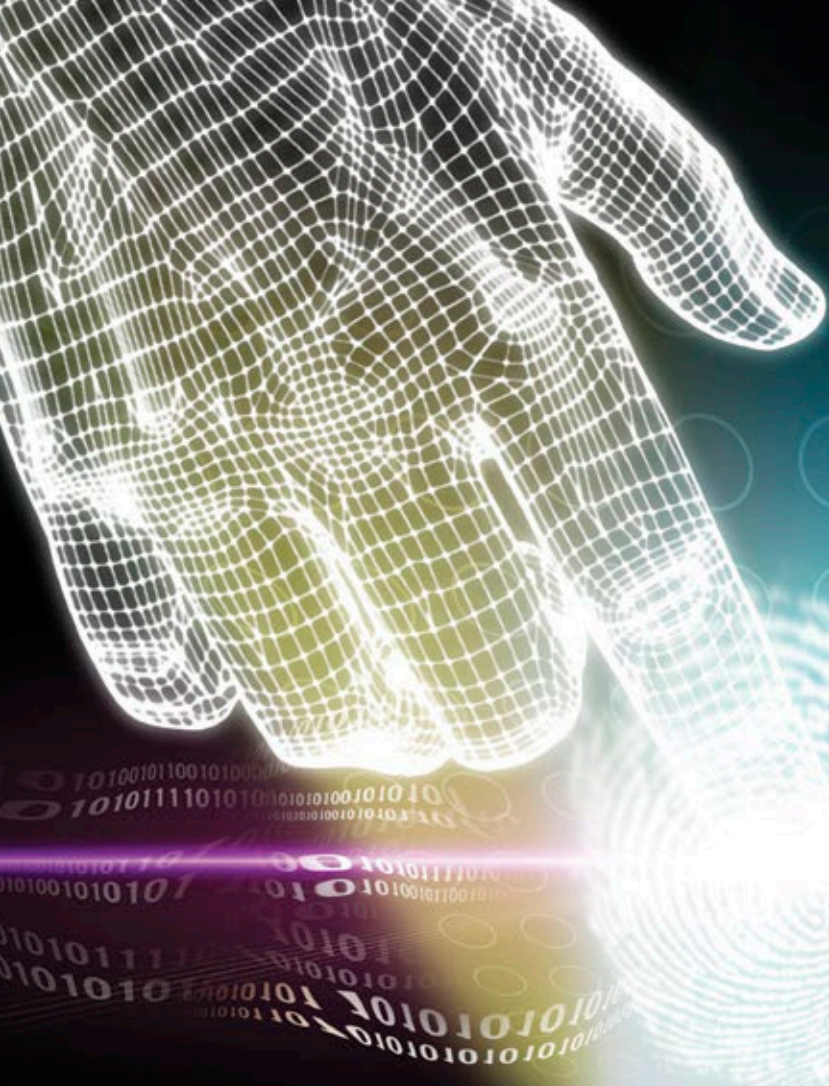
TRAVEL SCHEDULE



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
uat.edu/nacactravel



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

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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

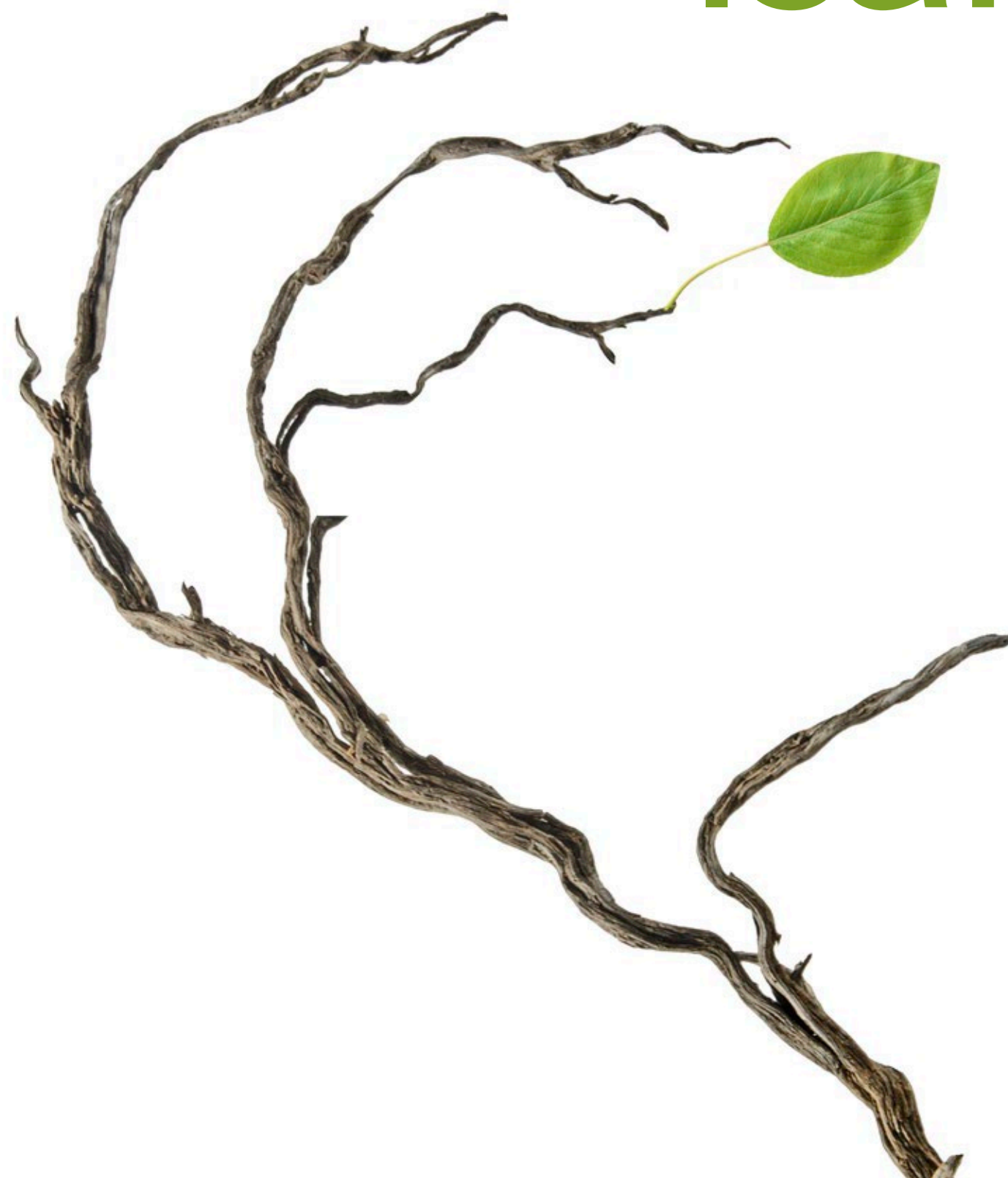
LEARN, EXPERIENCE AND INNOVATE WITH THE FOLLOWING DEGREES: Advancing Computer Science, Artificial Life Programming, Business Technology, Digital Maker and Fabrication, Digital Media, Digital Video, Enterprise Software Development, Game Art and Animation, Game Design, Game Programming, Human-Computer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



TAKE YOUR SLEUTHING TO THE NEXT LEVEL WITH A
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WWW.UAT.EDU/TECHFORENSICS

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

THE LAST leaf



Student film project goes international.

Not every student can take a caterpillar and transform it into an animated short film for children and receive widespread acclaim. Sophomore Gwyneth Christoffel did just that in *The Last Leaf*.

She not only developed the concept and story but also created the imagery, and wrote and performed the music.

In the film, a tiny little caterpillar runs into big trouble trying to get to the last delicious leaf on a tall tree. Gwyneth's objective was to create a joyful short film to showcase a fun but gluttonous caterpillar character. With the help of this cute little crawler, the film aims to communicate one should think twice before giving in to greed. It explores, in a concise and entertaining way, the ideas of conspicuous consumption and conservation.

The Last Leaf has been accepted to multiple festivals, including the Four Rivers Film Festival in Croatia and the Chicago International Children's FILM Festival.

"What would be a fun thing to animate?" Gwyneth asked herself as she was thinking of her next film project. So she began thinking about the basic movements of a caterpillar, the story, and how to tie in a moral. Story telling with a moral is her goal for every film. Drawing (pun intended) from the perspectives of UAT's design classes, she decided, "Why not try a traditional hand-drawn character and develop it frame by frame?" It wasn't until she was taking these classes that she discovered her artistic talent. The traditional drawing concepts in her Beginning Drawing 101 class was what initially inspired her. Her Graphic Foundational Principles class dealt a lot with Photoshop and that also helped her discover her talent for digital painting.

What's even more innovative about her film is that she did it independent of her classes. In fact, she tries to complete one each year in addition to her other assigned class projects.

When her cousin gave her a ukulele at Christmas, she got the idea to include a ukulele track and UAT provided the materials for her to make a sound booth. It took three months for Gwyneth to take

her idea from concept to completion. This caterpillar is fast becoming a "butterfly" on the student film festival circuit.

"Congratulations, your film *The Last Leaf* has been accepted to the Four River Film Fest June 17-21 in Karlovac, Croatia." Those were the opening words in the acceptance letter DV student Gwyneth Christoffel received last spring. Gwyneth has received lots of recognition for her newest film project, including invitations from several film festivals. But this one was international—how could she afford to go? Because Digital Video professor Paul DeNigris urged her to attend, the sophomore was able to travel to the festival thanks to support from UAT that made it happen.



The Four River Film Festival is dedicated to screening and showcasing high school films from students ages 14 to 20. Gwyneth's entry was selected from more than 300 applications received from 36 different countries. This festival is one of the top destinations for young filmmakers, boasting 4,000 spectators and 150 international guests from all over the world.

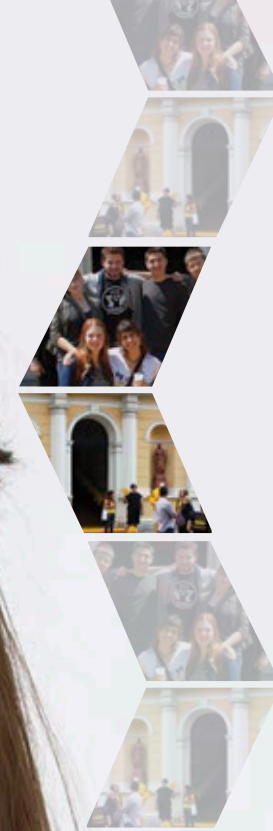
In addition to a host of promising youth films being showcased, the festival also offers diverse workshops, round tables, field trips, music concerts, and arguably the finest "theatre halls" in the world.

"It was one of the best experiences ever," exudes Gwyneth, "I got to meet people from all over the world including Serbia and England." She spent the week going to films, screenings, lunches, and parties. And it was Gwyneth's first international trip by herself. "I learned so much about myself and my abilities."

"I am so proud of Gwyneth and her continued success as a filmmaker, even outside of her DV classes," says Professor Paul DeNigris, UAT's Digital Video Program Champion. "Not only has she been doing

fantastic work in my courses—with even more awesome stuff yet to come – but she also makes sure she completes at least one solo animation project every year. *The Last Leaf* is an adorable little animated film about a tenacious caterpillar determined to get the last bit of foliage off of his tree branch. When she told me *The Last Leaf* had been accepted to Four Rivers Film Festival and that she'd have the opportunity to network with and learn from other film students from all over the world, I knew we had to do whatever we could to help get her there. I was so pleased that UAT could assist and get her there to represent the University and the DV Program abroad."

Gwyneth received lots of positive feedback from her new friends and colleagues, and was thrilled when her mom was able to see a screening back home in Halifax, Nova Scotia, and the kids laughed and gasped at just the right moments. "Oh my gosh, this is why I do this," said Gwyneth.



For more about Gwyneth's experience, watch her VLOG <http://bit.ly/1k8S9NZ>



DV Students recognized at 48-hour film challenge

Congrats to UAT Digital Video students who walked away with two awards for Audience Favorite and Best Actor in *Criminal*, a student film that was screened at the IFP Phoenix Beat the Clock award ceremony last Summer.

The annual competition welcomes independent and student film projects throughout the state. Approximately ten UAT students from different majors came together to produce the short film *Criminal*. Their film had to be a comedy no longer than five minutes in length including credits.

Team Members

Darien Marion- Digital Video
 Ceara McSherry- Digital Video
 Nick Francia- Digital Video
 Dylan White- Digital Video(Alumni)
 Steve Briscoe- Not a student
 Jace Oppie- Digital Video(Alumni)
 Paul DeNigris- Professor
 Saphire Tillmon- Digital Video
 Daniel Hall- Digital Video
 Gwyneth Christoffel- Digital Video
 Ryan Moore- Digital Video
 Ryan Simpson- Game Art & Animation
 Joe Tompson- Digital Video



ENTER THESE CONFECTION-FILLED WORLDS IN THE GAME

Dia de los Dinosaurios

WHERE DINOSAURS COLLECT CANDY IN THE LAND OF THE DEAD.

Dinosaurs collect candy in the confection-filled worlds of Dia de los Dinosaurios, where you can enter a chocolate lava cave, a jungle adorned with colored flowers and paper decorations, an ocean full of sugar water, and a desert filled with cinnamon dunes.

This delectable game artfully combines three distinctive themes in the Student Innovation Project of senior Tyler Curran (Game Design), Dylan Gaitner (Game Programming), senior Robert Flad (Game Design) and senior Eric Price (Game Design and Game Art & Animation). A total of 20 students comprise the team.

The story is about the passing of one of the main characters' friends and they want to honor his memory by creating the best festival display they can. Although the tone is uplifting (think of a Disney or Pixar movie), the underlying story theme is accepting that bad things happen and making the most of what you have (which ties into the overall Day of the Dead's celebratory theme). The main objective is to collect (and confect) as much candy as possible by completing various tasks for the non-player characters found throughout the game.

What's innovative is the combination of the Mexican holiday with dinosaurs, and the design as a procedurally generated platformer game with environments that change. A unique world is created around the player every time they play. Players can switch between the five main characters (each with unique properties) during the game (some objectives will require them to be playing as a specific character).

Game Design major Tyler Curran is the project lead. His responsibilities included delegating work and making sure everyone was on the same page and knew exactly what the project was and what it wasn't. He credits his experience to becoming more proficient in communicating his ideas to others, which will be a big benefit in the real world. And he is grateful for Professor Ben Reichert for keeping the team on track and on deadline.

Originally from Winona, Minn. Robert is the game's level designer. He is in charge of the game's basic collectable

environment, the goal in which is to find all of the floating candies.



"What I liked most about this project has been the freedom to work on something myself, and still had the reference points and the aid of an entire team to help me," he says. The biggest draw to UAT for him was the goal to get students working on projects. "Instead of learning what has been done, we were meant to create something new."

"My favorite part of the project is actually being in a management position," says Eric, in charge of Team Management and Design, who hails from Dillon, South Carolina. "Moving around to everyone's computer as they worked, answering questions, and making sure work was done correctly and put together properly was a new and fun experience."

The community is what Eric likes most about UAT. "I've met a lot of people here who are like me and people who aren't like me. But almost all of them can keep a conversation about one of my hobbies or interests and they've all got something unique to share or a cool new perspective to talk about." He adds, "At UAT, gaming isn't just a degree; it's deeply rooted in the culture."

Dia de los Dinosaurios is based on dinosaurs and the Mexican holiday Dia de los Muertos (Day of the Dead). The holiday is observed throughout Mexico and around the world in other cultures, and focuses on gatherings of family and friends to pray for and remember friends and family members who have died.

Team Members

Adam Moore
Game Design,
Game Production/
Management

Amanda Jaynes
Game Programming

Barret Gaylor
Game Design

Ben Pope
Game Art/Animation

Bryce Christifulli
Game Design

Catlin Iaud
Game Design

Christopher Le
Game Design

Darryl Sterne
Game Programming

Derek Hall
Game Art/Animation

Dylan Gaitner
Game Programming

Eric Price
Game Design,
Game Art/Animation

Evan Reynolds
Game Design

Greg Allhouse
Game Programming

Ian Fermanich

John Grady
Game Art/Animation

Justin Lefever
Game Design

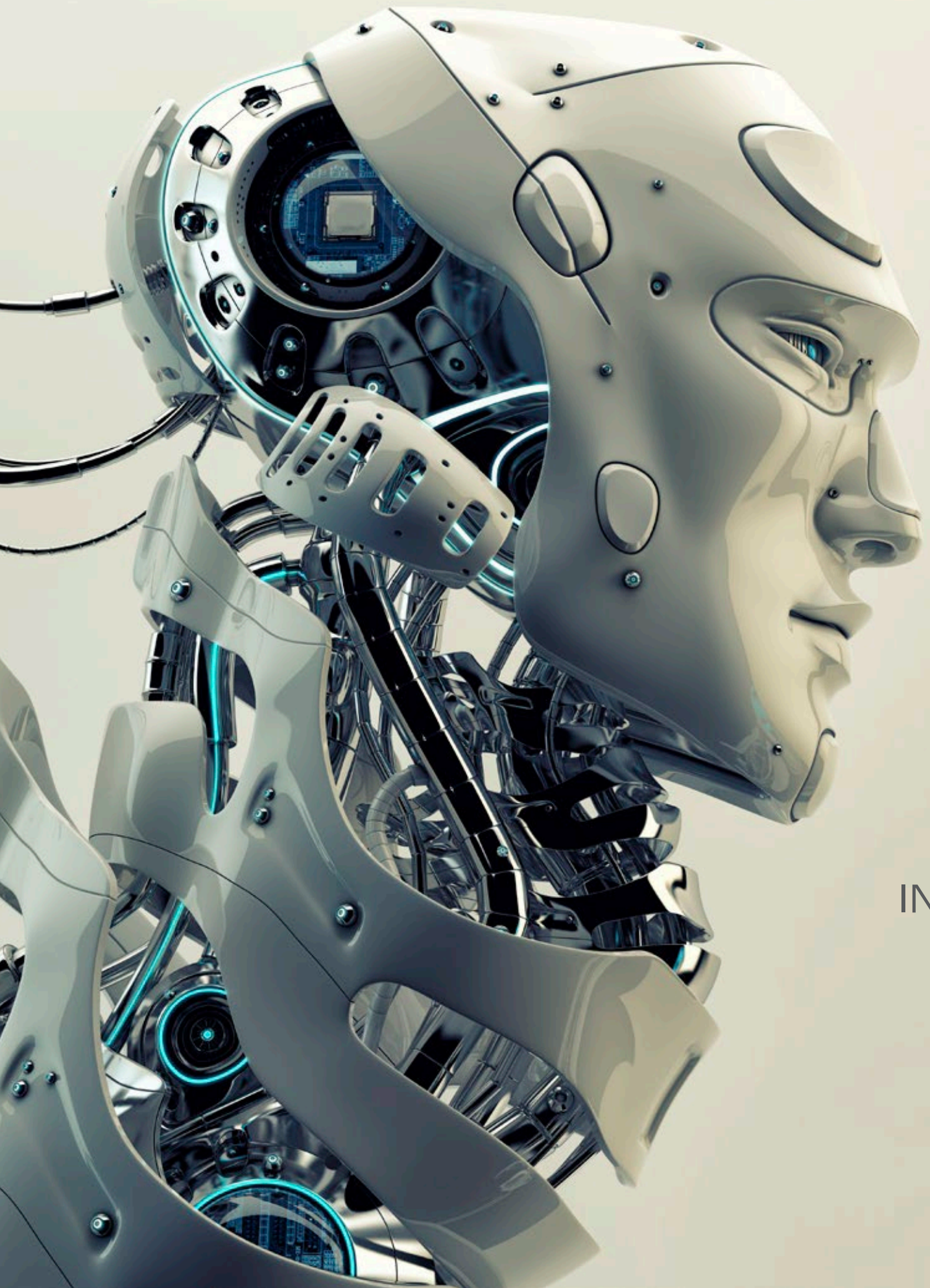
Nisa Bernal
Game Art/Animation

Robert Flad
Game Design

Scott Fronapfel
Game Art/Animation

Shedrick Flax
Game Design





“DANGER, WILL ROBINSON!”

It's not fiction any longer. Robots are part of our lives, with more being designed to protect us and make decisions. But are we ready to trust them?

Establishing trust with robots and robotic systems is an essential part of our growing co-existence with them, not to mention building our comfort level.

It's easy to be nervous about the thought of fully automated systems calling the shots, such as transportation, life support and power suppliers. How do we know it's safe for these robotic systems to make these decisions? All we have to do is think of the movie Terminator and we worry about machines double-crossing us.

Ultimately, our trust in robots will impact whether some new technologies will actually develop. Take, for example, the concept of self-driving cars. They would eliminate road deaths from drunk or distracted driving, which totals more than 13,000 in the U.S. every year. Most Americans don't feel comfortable with this concept, so it's unlikely the technology will develop until we do. The same applies to boarding an airplane that flies itself or a robot assistant that is fully autonomous in your home.

Shifting our thinking may very well decrease our anxiety about this. Perhaps if we don't focus so much on the decisions robots make for us and instead more on how they acquire the capability to make them, we'd be more comfortable. After all, it's the programmers and software developers who are creating those processes.

One concept being considered is giving robots a "heart" of sorts, programming them to fess up to their vulnerabilities and limitations and what may cause something to go wrong. After all, that kind of honesty builds our human relationships. Shouldn't the same principles apply to our AI compatriots?

As nervous as one might get about trusting a robot, there are arguments to be made about a robot being even more trustworthy. After all, when we're interacting with another human, we make assumptions based on what we think of them. This person's history of truthfulness or mistakes determines how much faith you have in them. It's trial and error, and sometimes your assumptions are wrong.

Robots might just have a leg up on us humans when it comes to trust, since programmers and developers control the software, which can be analyzed, isolated

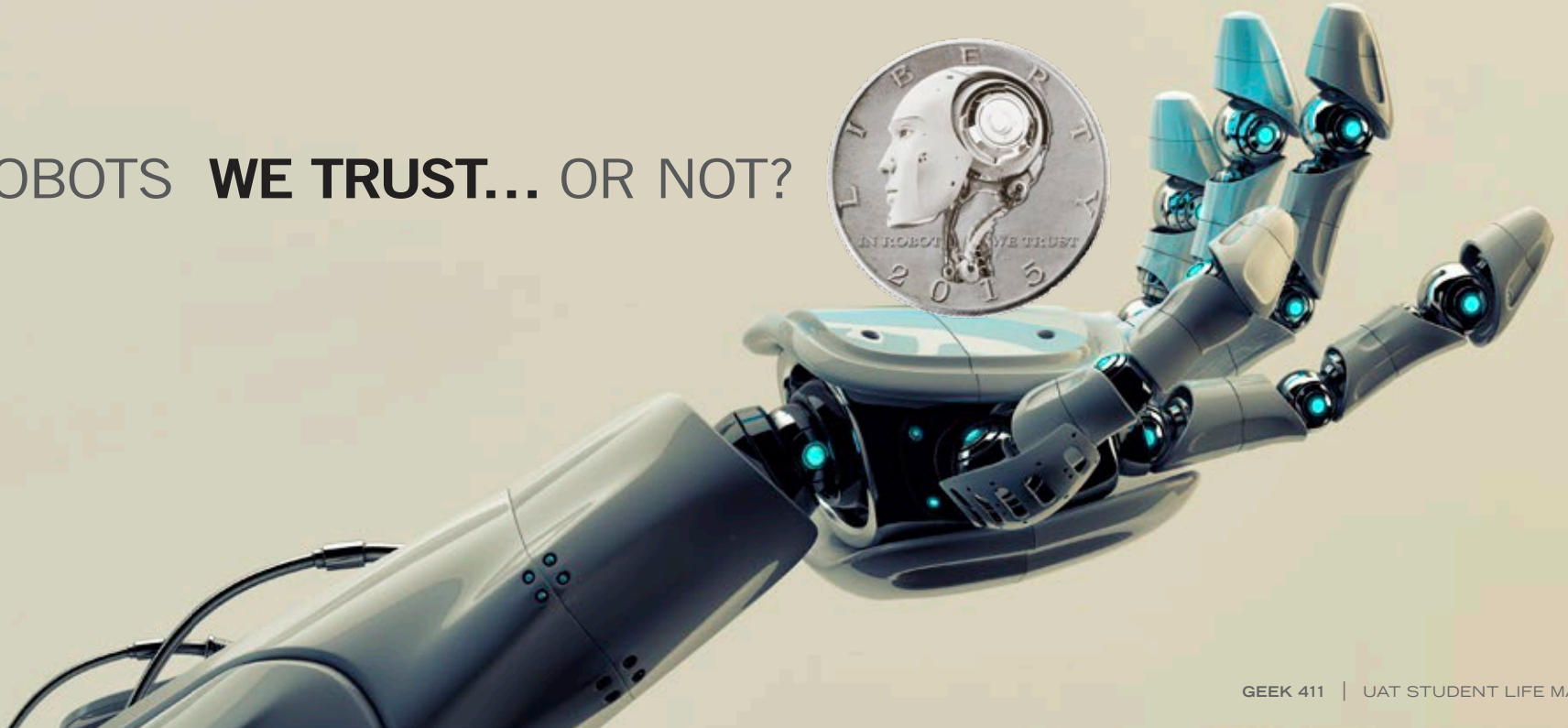
and reconfigured. Try doing that with the human brain. But even when robots are right and we are wrong, it can be hard for us to accept their help.

Opportunities abound for the next generation of AI programmers and software developers to invent new elements for robotic AI systems and build trust along the way. This will require considering the technical questions as well as the philosophical and ethical ones related to acceptable behavior and the ethics our robots should have.

UAT students pursuing programming degrees in Advancing Computer Science, Artificial Life Programming or Enterprise Software Development have an exceptional opportunity to innovate in these fields and enter a fast-paced arena with unprecedented job growth.

Two things are clear: automated systems will continue to transform the way we live and we're going to need to learn how to trust them. UAT programming students will be a force in how we do both. Trust us on this one.

IN ROBOTS WE TRUST... OR NOT?



DREADNOUGHT

[Takes Game Design to a Cosmic New Level]



...Load the missiles. Activate the shields. PREPARE TO ENGAGE.

Soon, you'll be able to do just that when you play the exciting game *Dreadnought*. UAT Game Art and Animation graduate Josh Morrison has made to the big time, as a 3D artist for YAGER who is a key player on the *Dreadnought* team. YAGER is an independent developer of computer and video games based in Berlin, Germany and specializes in the creation of AAA, multi-platform action experiences for a global audience.

Thanks to UAT's innovative curriculum in game development and real-world experience at Retora Games, Radial Impact and other companies during school and after graduation, Josh built his portfolio and was prepared for his exciting job halfway around the world. He specializes in modeling high-poly and low-poly, texturing, concept art, motion capture, animation, rigging, video production and graphic design.

Dreadnought is a free-to-play, futuristic aerial "dogfighting" action game with a distinct sci-fi look and intense, tactical feel. Published by Grey Box and developed by YAGER, *Dreadnought*

features both online co-operative multiplayer and an episodic single-player campaign. It has been developed with Unreal Engine 4 for the PC.

It is set in a futuristic era of war and hardship, where players take on the role of a mercenary spaceship captain who owes allegiance to no nation, fighting for glory amidst a galaxy of chaos. Battleships in the game are massive spacecraft that come in varied shapes and classes. Commanders will assume complete control, dedicating power to specific sub-systems, customizing weapons, engines, armor, abilities, crew and their ships' aesthetics. The game will feature 5v5 multiplayer as well as a single player campaign.

Josh's contributions include designing a cool ship for the game.

While the game isn't scheduled for release on PC until sometime in 2015, *Dreadnought* already is highly acclaimed for its game design innovation that's generating a lot of buzz and making news, not to mention making the E3 Hot 50 List from Game Informer and being featured at PAX Prime in San Antonio, Texas.

According to Joystiq, YAGER "has a novel take on gunplay involving giant ships, big guns, and nuclear weapons that shake

the pillars of heaven and earth in *Dreadnought*." In a review on their website, Joystiq writes:

"Describing *Dreadnought* as a shooter isn't quite accurate. Though it features the control scheme that's been standard since the days of Quake and pits teams of players against one another in a rush to see who can rack up the most kills, these opposing forces are not populated by your typical hyper-macho space marines. Instead, you pilot spaceships. Huge spaceships. Battlestar Galactica-scale spaceships. The result is a shooter that's equal parts Team Fortress 2 and three-dimensional naval warfare."

Josh is one example of how many new doors of opportunity can become available to those who work hard and apply their passion. And when you do in any of UAT's programs in Game Art and Animation (Game Programming, Game Design, Serious Game Simulation, and Game Production and Management), working on a national or international team of game developers on tomorrow's game innovation is within reach.



DID YOU KNOW?
UAT has five
Game Majors

FACTOID:

It is an era of war and hardship — but for the mercenary, it is an age of plenty.

Fortune favors the captain who fights under no flag.

Who builds a reputation not on rank, but on grit and fortitude.

The time has come to collect your bounty amid a galaxy in chaos.

Load the missiles. Activate the shields.
PREPARE TO ENGAGE.

Source: Greybox.com

Q&A

Dreadnought 3D Artist, Joshua Morrison, answers a Q&A question from a Facebook fan:

Question: Will we be able to customize the look of our ships? Such as adding decals or custom hull paints?

Answer: Yes, currently all of this is planned! You will be able to add cosmetic attachments that don't effect gameplay but let you create your own custom *Dreadnought*. You will also be able to pick from different paint jobs such as stripes or camo and then colors for these paint jobs. We will have decals too and are working on a figurehead system that will allow you to top it all off with a custom figure head for the front of the ship.

Source: YAGER Facebook page:

As a zombie, the goal is to chase down the computer controlled survivor and decrease their health bar enough to bring them down, achieving the win condition.

Zombie X-Trainer: Survival of the Fittest

an online student. "Zombie X-Trainer is designed to draw people into a fun, exciting, new way to exercise while still having a great time. You can play by yourself or compete and play with friends via their Xbox Live accounts, and play with them in either CO-OP or competitive multi-player mode. It has the entertainment, exercise and replay value that other exercise games don't provide."

Mark's professors were enthusiastic and supportive of his Student Innovation Project's design and concept.

"This was my shining star in my portfolio," he says. "I would say this project was where I spent the most creative time coming up with functioning system and mechanics. I am proud of the design I've created and I like to believe that my hard work showed on my portfolio and led toward me to finding my current job." He's a designer of industrial products—a job that, together with his portfolio, builds experience that will benefit him as he pursues a career in game design. For Mark, UAT's Game Design emphasis was what made the technology University stand out.

"I had researched several colleges in my pursuit of a game design degree and when I found UAT's website, its design was appealing and it looked as though UAT was a college that was meant for people in this field," he says. "All of the other schools I researched had very bland and standard descriptions of the game design degree, almost as though it was an afterthought. I found that UAT had a much larger website dedicated to this specific field and that was what caused me to pursue this school." The curriculum, professors, and convenience of his online classes are why he stayed.

As a zombie, the goal is to chase down the computer controlled survivor and decrease their health bar enough to bring them down, achieving the win condition. As a survivor, the player must run from the zombie until they reach the end of the level which will cause them to achieve the survivor win condition.

Become the zombie or the survivor who outruns it. And get a fitness workout while you are doing it.

That's the premise for Zombie X-Trainer, the Student Innovation Project of Game Design major Mark Young. The concept is designed to be the one-stop shop for both entertainment and healthy living.

Zombie X-Trainer seeks to change the general consensus of exercise games. Players who are looking for an escape from the same boring jogs on the treadmill can use Zombie X-Trainer to have fun while exercising.

"There haven't been many exercise games that included objective-based workouts with an atmosphere and the ability to compete or play with friends," says Mark, a 2014 graduate from Rochester, Penn. His game concept proposes a zombie encounter experience that can occur both as a survivor or a zombie with online and offline competitive and cooperative multiplayer modes.

Two modes of play exist: Survivor play and Zombie play.

At the beginning of the game, a player will enter their stats: height, weight, age and gender. During each session the player will be able to track their calories burned per level, by day, by week, and by total calories burned since they first started playing the game.

A player's movements are tracked and related to the game, monitoring a player's calories burned while running and jogging. There is also an on-screen counter that shows a player the speed they are jogging as well as the amount of simulated distance they have traveled. The Kinect camera tracks the motions performed by the player and interprets them into the various actions the player uses in the game.

Other player actions include ducking, punch attack, claw attack and turning. While the project is still in development, the exercise game's innovation proposes an exercise game that's distinctive.

"What sets the game apart is the game's wide range of options," explains Mark,



2:19 0:17 78 17
Time Distance RPM Heart Rate
Work Level Watts METS Calories

CAUT



geeked at work

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

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Online Abuse

What often is referred to as “harmless locker room talk” by “juvenile pranksters” who think their victims are “overly sensitive complainers” is, plain and simple, **Internet harassment**. In fact, it’s so prevalent these days that many of us shrug our shoulders and figure it’s just an integral part of our online culture, and there’s nothing we can do.

Online harassment is abhorrent behavior that has demonstrated social, professional and economic costs, not to mention the cost of human lives. It’s not just occurring on Facebook, YouTube, Twitter and a host of other social media sites. Online multi-player gaming is a veritable breeding ground as well.

Online communities have developed some innovative techniques to discourage harassers and in some cases even reform them. Embracing them requires a shift in thinking.

Quite possibly considered the most popular video game in the world, the battle-arena game League of Legends is one great example of how these new techniques made a difference. Its publisher, Riot Games, noticed two years ago that many players had quit the game because of offensive behavior. After forming a player behavior team with a staff of experts, community reforms were developed. Banning players wasn’t enough.

What research is finding by leaders in the gaming industry is that users must be involved in the moderation process, defaults must be set to create hurdles to abuse, clearer feedback must be given to people who misbehave and—most importantly—a norm must be created that doesn’t tolerate harassment.

The community must be involved in enforcing them, with online forums that include upvoting, downvoting and comments of disapproval or reporting inappropriate behavior. Microsoft’s Xbox network is another example of reforms in place. They implemented a community-powered reputation system for its new Xbox One console. Using feedback from players, as well as a variety of other metrics, the system determines whether a user gets rated green (“Good Player”), yellow (“Needs Improvement”) or red (“Avoid Me”).

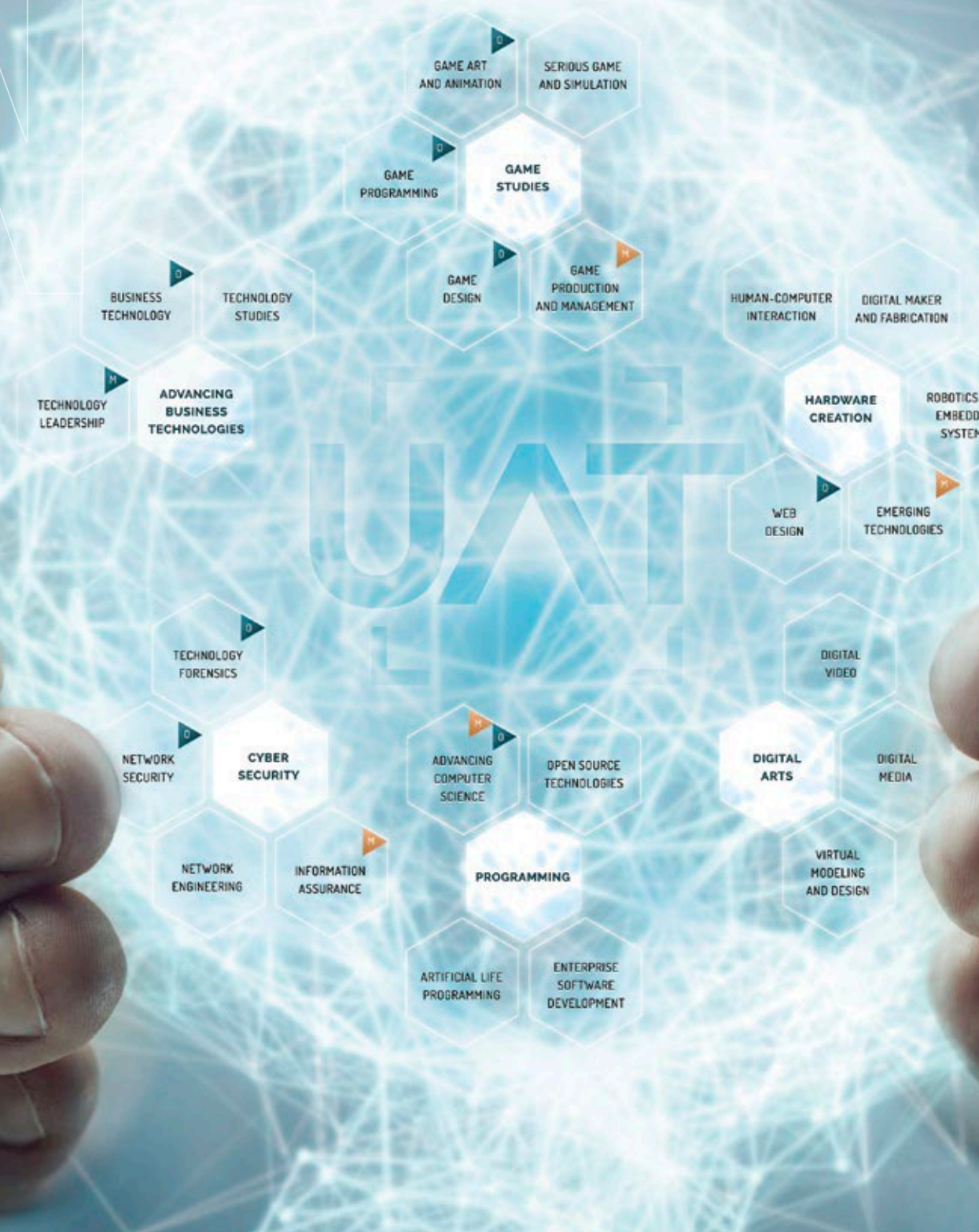
Becoming digital citizens early in life makes the difference. Because what occurs on the internet, and what is posted, stays there and might turn up years later, beyond school, when career building happens and reputations are forming.

While the social problem of online abuse is fueled by technology, the best solutions not only are controls but those centered in expanding digital citizenry. UAT’s advancing technology programs not only propel digital citizenry, they challenge students to innovate new ways to cultivate it.

Together, we can change that mindset. Digital citizenry not only protects us, it respects others.

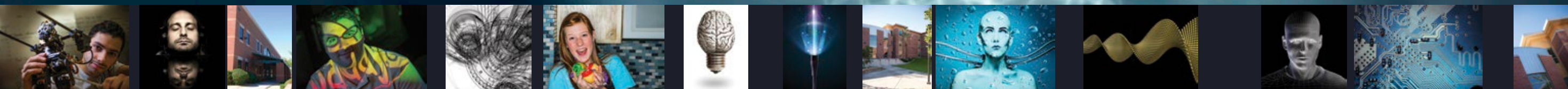


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Major: Robotics and Embedded Systems
Home State: Washington

JENNIFER TAFLIN

Jennifer was introduced to robotics in high school in her home town of Seattle and “became completely obsessed.” She learned about UAT’s great growing robotics program at a college fair, decided to apply and hasn’t looked back. She’s too busy learning and connecting to the people and geek culture, which she loves because everyone rocks it. She enjoys robotics Professor Mark Fedasiuk because his teaching style challenges students to truly learn. She’s already involved in a VEX robotic competition, and says the key is getting involved and meeting people through teams and clubs to make the most of your college experience.

“I do like the small student body and campus. At a bigger university I would have felt lost but not here. I get personal time with professors, who can sit down with me to work through problems, and I can pick their brains.”



Major: Game Design
Home State: New York

THADDEUS ALPONSE

Thaddeus originally considered careers in programming and aeronautics before discovering his passion for video games in high school. He learned about UAT when he was doing an online search. Upon exploring further, he became attracted to UAT because of the smaller size, quality education and lots of activities. His favorite class and professor are together in Game Design 101 with Derric Clark. He’s wasting no time getting involved, and enjoys Nerf Club, Smashbrothers and Ultimate Frisbee groups.

“I really like the professors and the fun way we learn. Everyone has similar interests so it’s easy to make friends. There are no social outcasts.”



Major: Robotics and Embedded Systems
Home State: Texas

RENE VEGA

Rene possesses all the ingredients to be a true “maker.” He’s had a lifelong fascination for mechanics and always did well in math. He gained a lot of experience in tech school, the military and at different manufacturing plants before discovering UAT at Phoenix Comicon. He was attracted to the personalized, smaller college environment UAT provides and now that he’s here, likes feeling connected. He realized his passion for robotics after working in an aluminum foundry and gained hands-on experience with robots.

“Each professor is really knowledgeable, and they tailor classes to you and your area of concentration within the degree program. The core classes are tailored to be applicable to you, which is why I prefer UAT over a state college.”

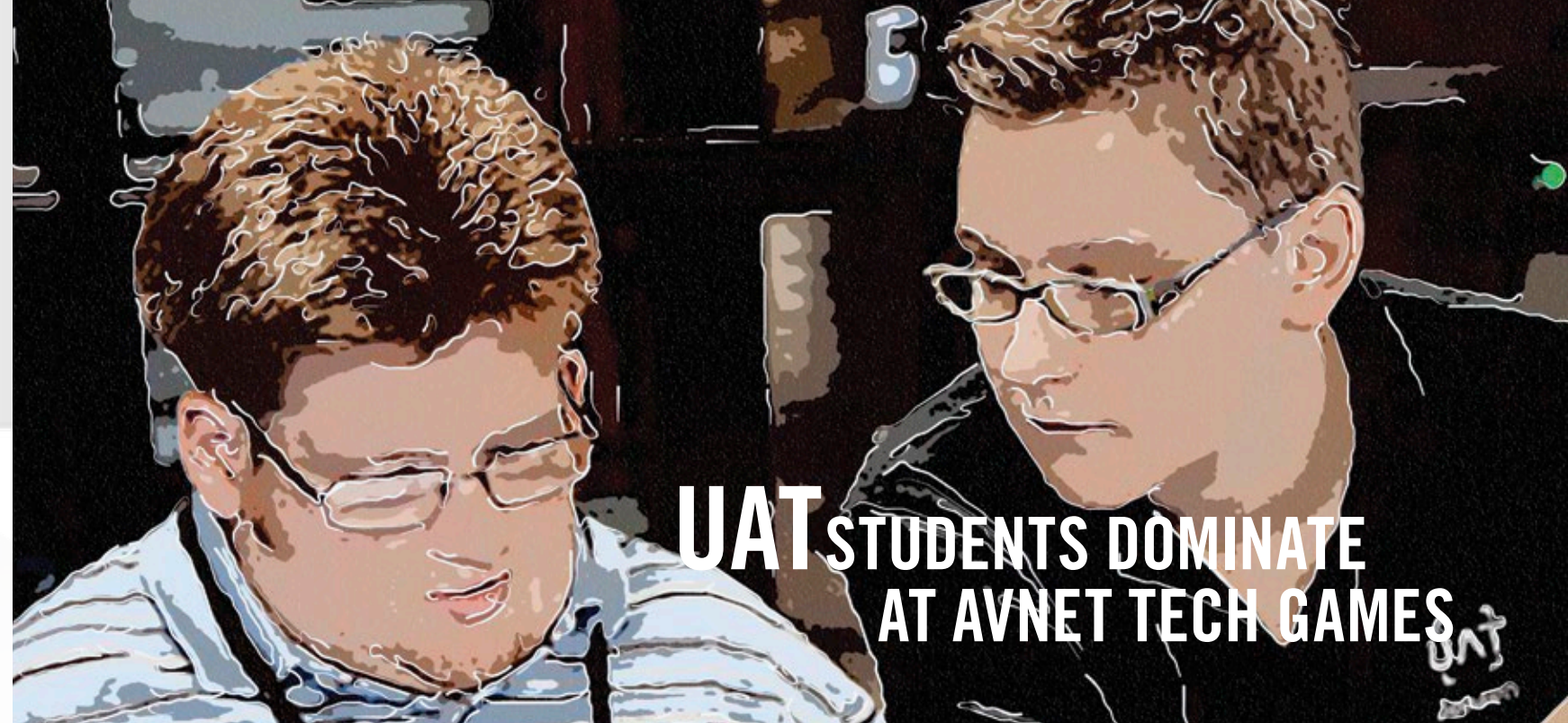


Photo courtesy of Avnet

Booyah!

UAT’s team event in the Desktop Domination competition did just that; it dominated in this category at the 9th Annual Avnet Tech Games. The team, comprised of students William Hartman and Kelly Stahlberg, earned the first place spot in the Arizona onsite and virtual competition conducted on the UAT campus in April 2014. They were each awarded a \$1,000 scholarship.

Close to 200 students from eight Arizona community colleges and universities competed head-to-head for top honors: University of Advancing Technology, Arizona State University, ITT Technical Institute, seven Maricopa County Community Colleges, Northern Arizona University and University of Arizona. College students also competed on a national level in the Spring Virtual Avnet Tech Games for a total of 76 teams competing. Winners of all were announced during the awards ceremony at the onsite competition, with 30 winning students collecting scholarship money.

As impressive as that is, William and Kelly took away far more from the respected competition in its 9th year. They gained the advantage of real world experience, which builds solid portfolios, and networked with other teams as well as tech-industry executives to help develop communication skills and prepare for job interviews—just some of the reasons why Avnet’s signature collegiate competition in advancing technology has become so well respected throughout Arizona.

Competitions included creating a solar-powered water-pumping system, racing to build a computer using refurbished parts and troubleshooting issues in the Windows 7 operating system, the latter of which was the Desktop Domination event, a new game this year.

Desktop Domination gave students a real-world opportunity to tackle actual troubleshooting scenarios that most help desks experience, such as replacing a fan or cleaning a malware-infected system. Teams had an opportunity to work in a virtual environment for software or system-related troubleshooting while also tackling potential hardware issues.

Going into the Desktop Domination competition, students needed an understanding of a Windows client/domain infrastructure, some knowledge and familiarity in a Windows 7 environment and basic computer troubleshooting skills, mostly on the software-end.

Provided with laptops, they had to complete tasks and fix issues in the Windows 7 operating system and demonstrate their abilities and troubleshooting skills to work in desktop support—all within a given timeframe. Access to the instructions and checklist was given only on game day and not before.

During eight separate events, the Avnet Tech Games provided the opportunity for students to demonstrate how they can make a difference in advancing business and improving quality of life. Students worked in teams and tested their knowledge, creativity, decision-making and technical and problem-solving skills.





The Sequence of your Game Play. Redefined

Sometimes when you're playing a game, the order doesn't matter. In fact changing it can make it better. That's why senior Tyler Curran, Game Design major, is designing his Student Innovation Project Sequence to mix things up. Sequence is a game mechanic that provides the ability to craft and present segments of a plot in such a way that they can come together in any order, and still tell a coherent but wholly unique story. What's even cooler is that down the road this mechanic could apply to storybooks as well.

Sequence involves being able to take the same self-contained story segments and, without modifying those individual segments, completely alter the overall story by placing them in a different sequence (while keeping the resulting story coherent... as if that was the sequence intended to be told all along). The various elements of story all fill multiple fiction tropes in order to create the links. For example, what was once an uplifting end to a story can take on a more sinister tone when placed at the start of the timeline.

Tyler developed a system that emulates a visual novel within the Unity game engine, created a code that keeps track of player navigation and choices, and implemented the scripts he wrote for the screen transitions.

"The idea for Sequence initially grew out of wanting to see if I could develop a system that allowed the player to somehow influence the game's backstory, in addition to the story they were currently taking part in," says Tyler. "That morphed into a vague concept about gathering intelligence to assemble some sort of timeline as to what happened previously in the game's environment. That concept eventually came into the game's current time and setting, and thus Sequence was born. The catalyst for the project was wanting to challenge myself. Information taking on new meaning based on experiencing it in a different order sounds like a very strange notion...so I wanted to see if I could do it."

What Tyler enjoyed most about this project was challenging himself with the idea of constructing a narrative in a new fashion.

"The initial concept came from thinking 'this sounds difficult, I wonder if I can do it.'" Now that Sequence is complete, Tyler proved to himself he can do it.

"This project was helpful in regards to the real world because I learned about managing a game's scope and properly scheduling projects," he says. "It gave me a big confidence boost."

How many times have you played a video game and the story stayed the same? Imagine how cool it would be if you played the same video game and the sequence of events changed each time to provide a completely new experience?



Tyler Curran, Game Design

UAT's Formula for Success Paves the Road to GDC



Game Developers Conference (GDC) is the grand poohbah of them all when it comes to showcasing game design and game development innovation. But how do you get to such an elite conference?

It takes the right formula with all the ingredients including a leading technology college.

University of Advancing Technology (UAT) provides the game studies infrastructure needed for students to excel through an immersive, comprehensive curriculum that addresses all aspects of game development. In fact, UAT is the only technology University providing the full gamut of programs to give students the advantage so they can blaze a trail in game design innovation that can lead to GDC.

UAT's Game Studies program is one of the first to include all five degree areas of game development:

- > Game Art and Animation
- > Game Design
- > Game Programming
- > Serious Game and Simulation
- > Game Production and Management

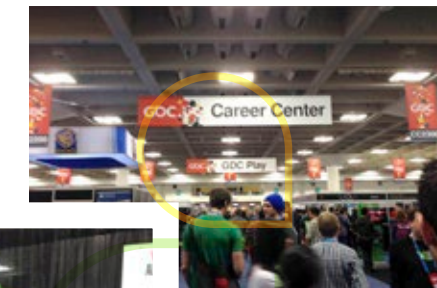
UAT cultivates a passion-driven environment with a collaborative education model that connects students with one another through cross-discipline projects and hands-on learning opportunities that expose students to all facets of game studies for complete game development.

These degree programs create more pathways for complete works to be developed with innovation that not only can be game changing but also builds impressive portfolios. Now, you're in "GO" mode at GDC—the gateway to the game industry that builds career pathways and can lead to jobs.

Many UAT graduates have gone on to find jobs producing mega hit games such as:

Starcraft Heart of the Swarm, Diablo Reaper of Souls, World of Warcraft Mists of Pandaria and Starcraft Wings of Liberty.

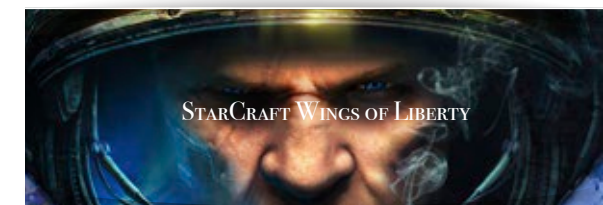
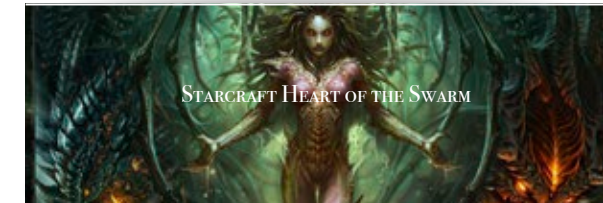
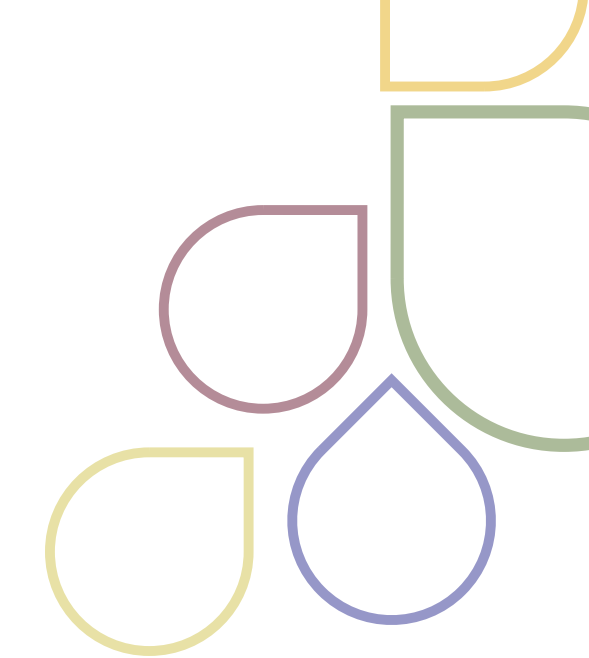
The road to GDC begins here, at UAT. Game on!



UAT students @ GDC 2014
Launching Their Success



UAT students @ GDC 2014





JT MARTIN

The Ad.
Force is
With Him.

JT Martin was one of those out there, artistic, Tinker Toy and Erector Set kind of kids—perfect training for a career in advertising.

Boy, what the right toys and a UAT education can do.

Several awards and accolades later, today he is one of the leading art directors in the southwest. The Litchfield Park, Ariz. native is a UAT alumnus who graduated magna cum laude with a Bachelor of Science in Software Engineering. He also holds a Bachelor's in Fine Arts Degree in Advertising Design from Northern Arizona University.

A strong conceptual thinker with in-depth project management/supervisory experience, he currently is lead designer and senior creative director at FabCom, an integrated strategic marketing and advertising agency, where he's impressed his team and clients for more than nine years. He manages and directs creative staff and evaluates projects, provides hands-on direction and execution of concept development, develops client positioning and strategies, and creates sustainable campaigns to meet client needs.

The well-known firms he has created for, or helped develop their brands on either the client or agency side, are Arizona Heart Institute, America West Airlines, Arizona Biltmore, Great Western Bank, Heard Museum, McDonald's, Motorola SPS, Phoenix Convention and Visitors Bureau, Zila Pharmaceuticals, Syntex Ophthalmics, Westcor Malls and Western Pacific Airlines.

And a host of others as well.

It's no wonder you see endorsements on his LinkedIn page like "Stupendous work ethic." "Has the wisdom to know what works." "Quick to think of creative solutions for clients." "Creative direction and professionalism always of the highest order." He's a decorated ad man, credited with Addy's, an Effie, HSMAI, a Prisma, a Telly, a Tina—and a Kim, his wife of 30 years.

"What stands out to me the most about my UAT education is the intimate class environments, faculty to student ratio,

Professor Vesna Dragojlov, UAT Provost Dave Bolman, Professor Derric Clark and UAT president Jason Pistillo are just a few examples.

He is the proud father of two grown sons who share their father's love of anything with wheels (racing cars, cycling, riding motorcycles, kart racing), concerts, drawing and painting. He also loves collecting mini guitars, vintage pocket watches and vintage race helmets.

JT's advice for students entering the art, design and multimedia realms:

"Having a passion for design and the arts is paramount. If you don't love what you are doing, you will burn out quickly. You must have a thick skin and learn to accept professional criticism. Stay up to date with the latest trends and techniques to stay fresh and relevant. Keep learning."

He credits UAT for creating new opportunities for him that he wouldn't have had otherwise.

"Having a passion for design and the arts is paramount. If you don't love what you are doing, you will burn out quickly. You must have a thick skin and learn to accept professional criticism. Stay up to date with the latest trends and techniques to stay fresh and relevant. Keep learning!!"

JT comes from a long and diverse history in advertising, both on the client and agency side of the creative. Prior to arriving at FabCom, he served in creative management for several of the nation's leading ad agencies: Patchen-Brownfeld (previous co-owner); Rosenfeld, Sirowitz, Humphrey and Strauss; and AdForce One.

He decided on UAT because he had heard about the technology College's faculty credentials, course selections and awesome facilities.

instructor enthusiasm and creativity, and that you weren't just another student; they cared about you and really wanted you to succeed."

JT goes back to UAT every now and then, usually wearing a different hat—as creative director during the onsite photo shoots for Geek 411. And he when he does, he feels right at home. In fact, he has developed relationships with many faculty and staff through the years, and it always feels great to reconnect.

"A great education opens doors and leads to new job experiences."

That's why JT is considered a leading force in the ad industry.

See more on JT @
uat.edu/alumniheroes

GAME PLAY WITH THE POWER TO SAVE LIVES

Originally from Chicago, IL, Luke found out about UAT from *Game Informer Magazine*. It looked like a very cool place to him and UAT's focus on bringing technology and art together intrigued him. Now that he's graduated, Luke wants to work on independent games and look for more educational game development opportunities.

"UAT was a really good experience," says Luke, a 2014 graduate, adding the environment is comfortable and conducive to anyone working with anyone. The technology based University helped him think outside the box and develop an idea for something people might never think of. He likes the fact your ideas are heard.

"UAT encourages that, which is a big plus," he adds. "They don't really restrict you; rather, they encourage you to break the walls down and do something different. In the end, you decide your own future because it's up to you."

Gaming technologies are being embraced by mainstream industries and organizations for use in training and education.

UAT's Game Design, Game Programming, Game Art & Animation and Serious Game and Simulation degrees are in high demand. The Serious Game and Simulation degree program utilizes game design as a base and applies the design principles of gaming to serious applications such as corporate training, medical and therapeutic, military and education. As this is a highly technical field, students will be exposed to all the tools of the trade, as well as mid-level programming and asset creation skill sets.

The power to enhance awareness and possibly even save lives is feasible through realistic game play, which is precisely the innovation in Luke Venchus' Racing on Drugs Student Innovation Project.

Game mechanics and design are safe to visually emphasize the effects of drugs (alcohol, marijuana and LSD) on the everyday driver.

Games are a great way to teach, and as a Game Design major and recent graduate, Luke understands just how powerful they can be. With his Student Innovation Project, he plans to create a fun-to-play, educational racing game that will inform the player of the positive and negative effects of each drug.

People of all ages can benefit from education regarding the effects of impaired driving. Many don't realize just how dangerous it really is to get behind the wheel on drugs.

Designed for the PC, the game also is unique in its unbiased approach to drug awareness education and the effects of drugs while driving, and can serve as an effective training tool for educational organizations. He believes there's little to no market for drug awareness educational games, so he feels there's a real void his game can fill. He is seeking a few more people to help him complete the project, and funding, which he hopes to pursue through Kickstarter.



The New AI with a Global Brain Meet VIV.

Meet Viv. She's like no one else you've ever met. Because she's got an entirely different kind of gray matter – a "global brain." In fact, she can teach herself and learn something new every day. She's not human, but in some respects it may be increasingly hard to tell the difference. Developed for Viv Labs, Viv represents innovation in artificial intelligence, creating a fundamental shift in our thinking about AI and how software for it, is built. Her potential knows no bounds. When you can combine your personal preferences with a near-infinite network of connections, you can get answers to almost any query with a resource that can perform almost any function.

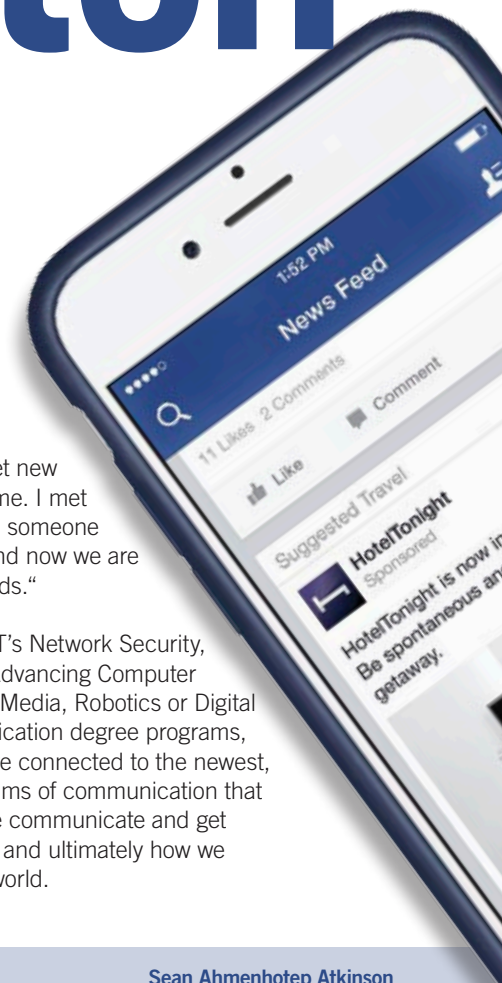
Compare this to Siri, Google Now or any other voice navigation system. As helpful as Siri can be, for example, she has her limitations. Sure, she knows how to check your calendar and how to use OpenTable to make a dinner reservation, but combining the two to check your calendar and make a reservation is beyond her right now. That's because Siri can only perform tasks that Apple engineers specifically implement.

But according to Viv Labs' engineers, many of the same ones who invented Siri, this new AI bridges that gap by developing its own code on the spot – without programmers. A complicated command like "Get me an airline reservation to Chicago next Tuesday with a seat that would fit Shaq" will reveal her best feature. She will break down your request, consider your personal preferences and automatically link third-party information resources together to find your answer and fulfill your need, all in a blink of an eye. As an open, flexible and universal system, Viv will allow for countless applications to become part of its ever-expanding brain. The more she's taught, the more she understands. That's because Viv's AI design is unique, based on three principles or "pillars."

1. It will be taught by the world.
 2. It will know more than it is taught.
 3. It will learn something every day.
- As exciting as this advancement is, with all the potential to really change our lives, AI's growth is exploding and ripe for innovators from UAT's Artificial Life Programming and Robotics and Embedded Systems degree programs who will be prepared to guide our future growth in these technology fields.



From TV to Twitch



TV has taken on a life all its own, not only spreading the news but also amplifying it.

Let's time travel for a moment back to the 1930s. Picture yourself with your friends or family, gathered around the TV, watching a show you've scheduled your entire lives around. It was one-way communication being broadcast to you at a set time, and it was highly entertaining and totally captivating.

Today, the event you want to watch is available when you want it, where you want it—all thanks to what TV has brought us through the decades and how it connects

today to your smart phone, social media and streaming services.

TV's connections to Facebook, Twitter, Instagram, SnapChat, plus a host of other social media forums transform the speed and manner in which we share news with people around the world. Plus, app development is flourishing, providing us more opportunities to connect to the news on our smart phones, tablets, laptops, PCs... and TVs. Then there's a totally different kind of TV; Twitch.tv. In just four short years, it's become the world's leading video platform and community for gamers. Twitch has become far more than a venue

for watching others play video games. It has gradually become a media entity unto itself. You didn't have to be at E3 in 2014, Twitch.tv covered it live. It's anticipated that Twitch will continue to gain steam as the go-to home for eSports, covering epic events such as The International, the League of Legends Championships, Evo and more.

"Besides streaming any kind of video game, Twitch.tv connects us to the world," says UAT sophomore John Rodriguez, a Network Security and Network Engineering major who chose UAT for its academic excellence. "I like the fact that I can

connect with other people with similar interests, give live feedback, and that a community can be built around a game or event," adds John, a Laredo, Texas native. While John prefers accessing Twitch.tv on his PC/Laptop, he says the smartphone app always keeps him connected whenever he's on the move and not at home. It lets him continue watching a stream he may have been watching at home.

"I like Twitch.tv because it's another way of networking," says Game Design major Andrew Gunn from Peoria, Ariz. "I can go on twitch and get to talk to some CSGO professional players who are streaming.

I also get to meet new people all the time. I met two people from someone else's stream, and now we are really good friends."

Whether it's UAT's Network Security, Game Design, Advancing Computer Science, Digital Media, Robotics or Digital Maker and Fabrication degree programs, UAT students are connected to the newest, emerging mediums of communication that redefine how we communicate and get our information, and ultimately how we connect to the world.

UAT students connect with Twitch.tv. Join them!

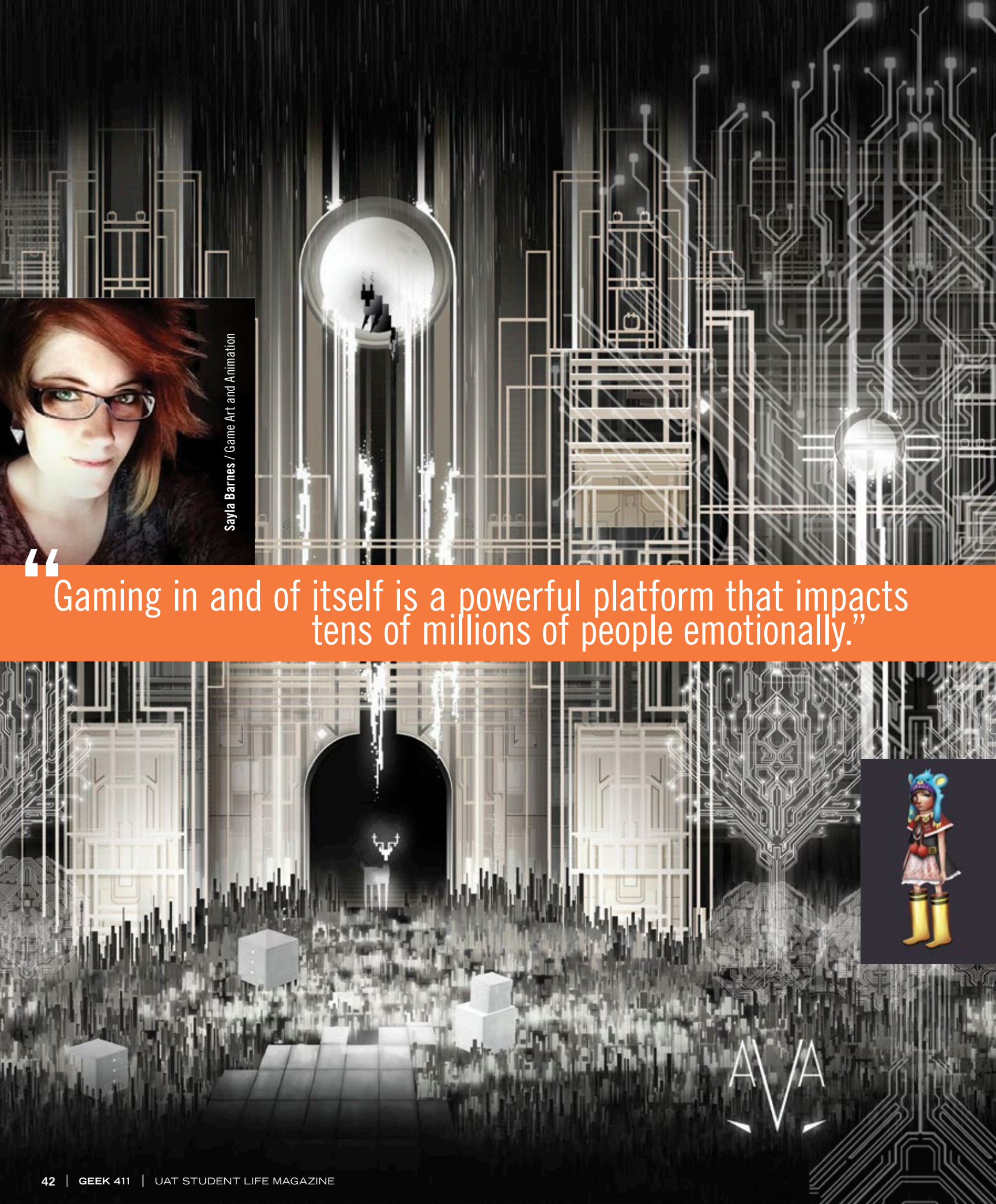
RJ Ginter
www.twitch.tv/lordlalala
"I stream when I get the chance, usually when I am playing with friends from back home on League of Legends, sometimes stream TF2 and anything else I feel like streaming at the time."

John Rodriguez
www.twitch.tv/MetaVulpes
"I stream whenever I have the time to do so. Mainly play League of Legends, NBA2K15, Evolve (when it was in Alpha), Call of Duty, etc." I also watch plenty of live events via Twitch – E3, PAX, LCS (League of Legends Championship Series), etc.

Andrew Gunn
www.twitch.tv/kamikaze4113
"I usually stick with just competitive games such as Dota2 and Counter Strike: Global Offensive (CSGO), which I am trying to go pro in. I always watch live professional CSGO matches. They have ESEA matches, SLTV, and many more matches."

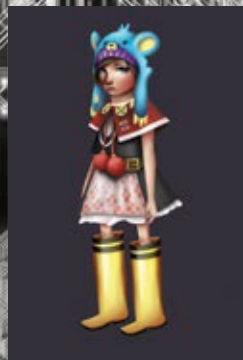
Tyler Martinez
www.twitch.tv/xpsychoticshotx
At the moment, I stream Pokemon and try to raise money for childspaycharity.org. On December 5th, I donated 250 dollars to them from all the donations received that day!

Sean Ahmenhotep Atkinson
www.twitch.tv/pandora66685
Angel Cash
www.twitch.tv/raw_angel69



Sayla Barnes / Game Art and Animation

“Gaming in and of itself is a powerful platform that impacts tens of millions of people emotionally.”



That's why Sayla Barnes wants to do more than entertain with her Student Innovation Project, AVA, an artistically innovative puzzle platformer. A Game Art and Animation major who graduated Summa Cum Laude in 2014, she hopes her video game will help to dispel social stigmas and increase awareness of depression and suicide with an intriguing game style.

Sayla wants to introduce a completely new aesthetic, both visually and emotionally, and provide players with a unique, personal and unforgettable experience. She focuses the game on two main characters: Ava, age 7, and her brother Tristian, age 14. They lose their mother in a sudden accident. While Ava progresses through the stages of grief, Tristian does not; he struggles. Ava meets with a white stag that helps her enter Tristian's world where the game levels begin. Everything is deciphered with puzzle solving skills and platforming.

A serious story, to be sure, but one that touches us all in one shape or form since more than 18 million people suffer from depressive disorders. She was inspired to develop AVA because she knows people personally who have struggled with depression on a daily basis. They really helped her see depression from a true perspective. So why not develop a game that offers intriguing game play, an interesting game style, artful design, and immersive music and storytelling while at the same time spreading awareness and understanding?

Originally from Plainview, Texas, Sayla calls Austin, Texas her home now where she already is working as an independent contract artist and illustrator.

When Sayla decided on this project, she knew she'd have to approach this topic from a different angle. Maybe she could also spread the message of supporting those with depression through Ava as a character. Then the idea became: while other games try to make you feel depression, AVA is going to actually fight it.

There's no direct combat in this game. Levels are the "13 realms of feeling" (the last being depression) that progress you through the game. Rather than put players into Tristian's situation, like past games have done, Sayla decided to put them into Ava's position. She's not forcing the players to feel anything, but rather putting them in a position where they have the choice to help.

"Even if only five percent of people play the game, that's 12 million people who have an enhanced awareness and understanding," says Sayla. "It has the potential to be game changing." AVA is still in development, with plans for completion as soon as Sayla can develop a team to add the programming piece to the equation. She completed much of the ground work and base structure for the game, and it's already attracting a lot of interest from potential consumers.

UAT caught Sayla's attention during her college search because of the course curriculum for their Game Art and Animation program.

"The Game Art and Animation program was exactly what I was looking for," says Sayla. "UAT quickly earned my favoritism when searching and comparing programs of study at other colleges because the classes covered a majority of the skill sets required to become a professional game artist in the industry."

Although she's graduated, Sayla is grateful for the support she continues to receive from everyone at UAT – faculty and students alike—for her project. When asked if there is one professor in particular who stands out, she says it's hard to pick just one, but Ellen Wolterbeek comes to mind.

"Her love of learning is contagious," says Professor Wolterbeek of Sayla. "She raises the quality of the work that students do in our class simply by the value of her contributions -- she sets the bar high, and works to help other people meet it."

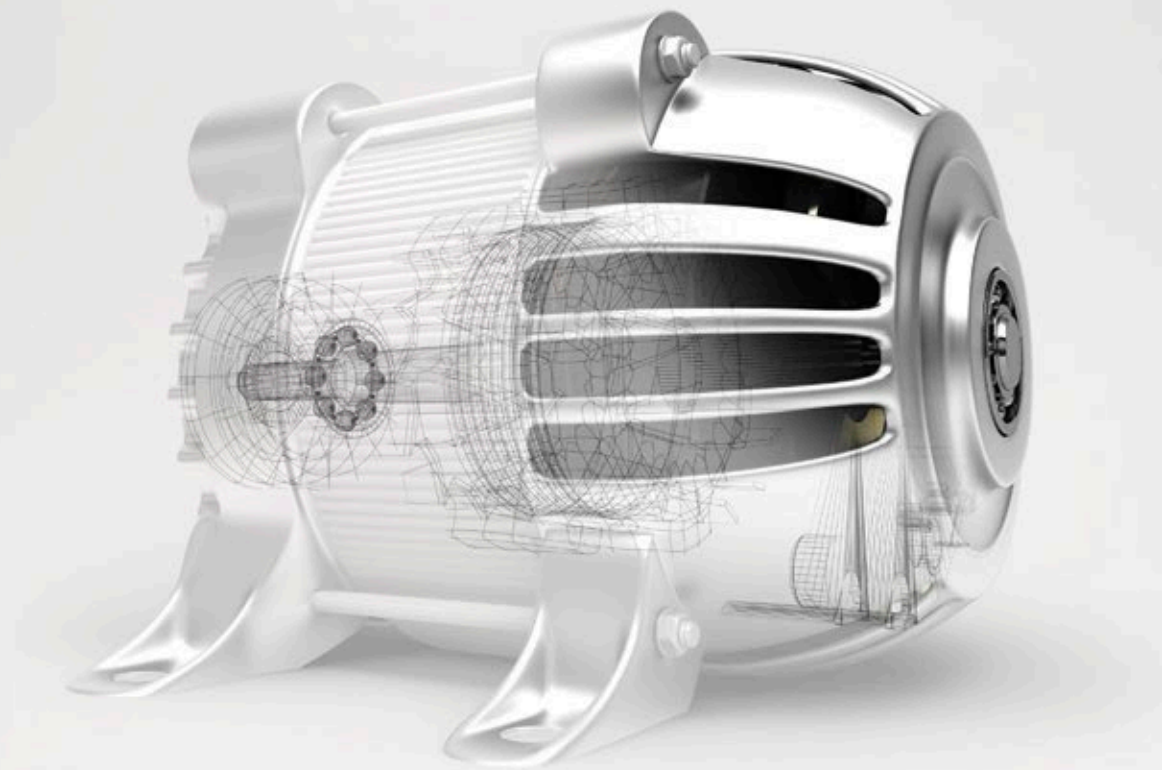
"Everything felt extremely personal when working with the UAT staff and professors, and the students were always encouraging and supporting one another in the classroom environment. It really felt like I was part of something, and even though I've graduated, I still feel that connection with the university."



Game Experience Designed to Dispel Social Stigmas



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TECH
RESPECT



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Today
Tech Respect...



Tomorrow
the World!



Women make up only a quarter of the tech industry workforce in the US, according to the Bureau of Labor Statistics. Not to mention by 2020, there will be more than 1.4 million computer science jobs alone that will be available. That means huge opportunities for more women in technology, and an even greater need for the resources and encouragement so they can grasp them.

With forces like UAT championing women's vital role in technology careers, a growing number of women are earning tech respect with the skills and confidence they need to seize the reigns and innovate for our future.

It's not just about providing more job opportunities; it's about encouraging more students to discover their passion and abilities for technology and help them understand that yes, they can pursue their dreams. That takes a combination of forces coming together to nurture interest, build self-confidence, create opportunities and provide support – from parents to school systems, policy makers and the companies themselves. Plus it requires an open mind and shifting from the way things have always been done.

Professor Vesna Dragojlov and other UAT faculty do more than teach, they are tireless advocates for the role of women in technology. They fuel students' inner tech passion, fine tune their path, support them in developing their skills and talents, and empower them to succeed.

An instructor in digital media, human computer interaction, web design, design and digital art, Professor Dragojlov has been a leader and mentor in gender equality and cyber feminism for many years.

Professor Dragojlov's teaching job goes beyond the classroom. She champions global awareness, helping to break down gender discrimination walls by addressing the challenges of lack of recognition, lack of compensation and stereotypes. She has spoken around the world, lecturing to graduate students on cyberfeminism and its role in the new media arts. She's conducted workshops and has been a guest lecturer of the Brain Gain Program of the Austrian Organization (WUS Austria): Department of Gender and Women Studies at the University of Novi Sad, Serbia on the intersections of arts, science and

technology. Awareness is the first step to overcoming these obstacles.

Before arriving at UAT seven years ago, she witnessed firsthand the detriments of a gender bias in educational institutions and industry alike.

"When I arrived at UAT, it was entirely different," says Professor Dragojlov. "There was an incredible level of respect for female students among the male student body, even when female students only comprised three percent of the entire student body and most of my classes were all male." Today, the number of female students is nearly 13 percent, and UAT is committed to growing that number by spreading awareness about the opportunities they have in technology careers. Faculty also is comprised of several women who are technology leaders in their fields.

Professor Dragojlov is a role model to many of her students, who often seek her advice. That's because she makes it a priority to address the issues surrounding the male dominated tech world in all of her classes and answer questions. She wants to make sure students don't feel there are barriers to them completing their degree and becoming technology leaders.

"UAT is dedicated to making our female students feel supported and connected," Professor Dragojlov explains. "We build connections with other female students, and they work not only on co-ed teams but also on all-female student projects like My Music Mosaic, which was developed as an innovative, real world therapeutic tool for the All Greater Good Foundation." Professor Dragojlov and other faculty also serve as mentors to women and ask them regularly how they feel about their UAT experience and about the tech industry as a whole.

"We address any challenges they may have so they become excited to graduate and pursue their dreams. What a rewarding job I have."



MORGAN MENTOR
SOPHOMORE, Game Art and Animation

When I was little all I would see about technology is what I saw on tv. I never got to be a part of it. Now, I'm here experiencing it versus just watching it, and it's pretty amazing. I hope to be the lead character artist for some major company – or help an underdog become a major company with my art. I'm confident and very excited. We're exploring an entirely new frontier and it's going to be awesome, so get ready.

JASMINE HUBERT
SENIOR, Digital Media (Aviano, Italy)

Europe is not up to date on women's role in technology. Here it's different. Women are taking control. I just have to be the best because now all the other girls are doing it. I want to work for a nonprofit, product design company. Anything with design.

CLARISA MORIN
SENIOR, Game Art and Animation (Somers, Conn.)

It's definitely easier for women to get jobs in technology, however there are still problems in society with people who are against the change. It's not quite where I'd like. I think it shouldn't matter who you are. It will be better in the future, and it's going the right direction.

GWYNETH CHRISTOFFEL
SOPHOMORE, Digital Video (Halifax, Nova Scotia, Canada)

People used to think of a movie director as Stephen Spielberg, Chris Nolan, James Cameron. Now you see Sophia Coppola and other women rising to the top. Still, it's not there. When you do great work the news should be the accomplishment not the fact you're a woman. At UAT, everyone supports one another; there is no difference.

MARIAH SMILEY
SOPHOMORE, Game Art and Animation/
Web Design

I've seen a change; there are a lot more job opportunities for women. Google and Microsoft are definitely wanting to close their gender gap by bringing more women in. My ultimate goal is to work for Blizzard Entertainment. I want to be their lead environment artist and to be the best artist they've ever had. Tons of UAT female alumni are working for my dream company so if they can do it, I can too.





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> Graduate with the ability to work in a variety of development environments by gaining coding experience across numerous applications and platforms. by gaining coding experience across numerous applications and platforms.

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Movie Magic...

Program



Louis Sandoval – Alumni (Artificial Life Programming, Advancing Computer Science 2014)

Angela Leifson - Junior (Network Security, Technology Forensics 2016)

Derek Sinex - Senior (Game Design 2015)

Flynn O'Hare - Senior (Game Design 2015)

Freddy Chavez - Senior (Network Security 2015)

Jacob Nichols – Alumni (Game Design 2013)



Gestural interaction is not just the stuff of sci-fi movie blockbusters like *Minority Report* and *Iron Man*; this advanced technology will really be a part of the GIFT (gestural interface firewall technology) Student Innovation Project.

The project also is advanced in its approach to solve a real world problem. Managing firewalls has, traditionally, been no easy task. There's just got to be a more user friendly interface. So UAT students and faculty worked together to develop an idea to create it.

GIFT was the Student Innovation Project of Game Design major Jacob Nichols, Network Security major Michael Hoffman, Network Security major Freddy Chavez, Game Design major Joshua Thomasson, Game Programming/Game Design major Cody Fischer; Game Design major Derek Sinex, Artificial Life Programming major Louis Sandoval, Game Design major Flynn O'Hare, and Network Security major Angela Leifson.

Contributions were made by Network Security major Robert Smithers, Network Security major Loran Lewis, Network Security major Nicolas Jauregui, Game Design major Justin Mooney and Game Design major Luke Venchus. It all began with Professor Russ Rogers, who wanted to develop something more intuitive than a massive data table. With some collaboration with Professor Derric

Clark, the idea to create a visual gesture interface with the Kinect was born. Students from across the disciplines of Network Security and Game Design/ Programming were recruited to make the project a reality and a Special Topics class was formed for the project. That's the beauty of personalized learning at UAT. Cross discipline collaboration at UAT is encouraged and a pivotal part of its Synchronic Learning education model because it fully prepares students to work in teams after graduation.

The GIFT team looked at some of the current stock of security-related appliances and software use, a CLI interface for its users and administrators, which can be complex, confusing, and cumbersome. After doing their research, they realized that in retrospect, most people prefer an intuitive, interactive interface, resulting in a more gratifying and simpler work experience.

Together, they determined that using interfaces similar to that of video games would work well. GIFT utilizes the Kinect SDK set up to monitor and administer firewalls through a gesture based interface, as opposed to the standard spreadsheet format. Taking that style of interface and transferring it to a firewall will make firewall administration quicker and easier.

The program can be used on any computer with a Kinect attached and

running. The application will turn the task of managing a firewall from searching through data tables to navigating simple menus with gestures.

Currently there is an Alfa prototype of the project, which is still in development. It's designed to be open source, and is available on GitHub so it can be shared and edited. There is a goal to target this technology to businesses.

2014 graduate Jacob Nichols served as a game designer and communications liaison between the Network Security and Game Design teams.

"Being part of the GIFT team was a great learning experience for me that further developed my skills and exposed me to how multiple technology disciplines work together," says Jacob, who hails from Clarkston, Wash. Now a graduate, he's glad he discovered UAT through PC Gamer magazine where he saw a full page article featuring the game technology. The ad invited people to check them out, so he visited Tempe to take a tour. That was all it took; he was hooked.

"I've enjoyed the energy and enthusiasm of the professors at UAT, and I've met some really great lifelong friends," he says of his UAT experience. "The campus is awesome because of all the cool technology that's right there for you 24/7."

GIFT's Gesture Interface is Real

Team Members

- Jacob Nichols – Alumni (Game Design 2013)
- Joshua Thomasson - Alumni (Game Design 2014)
- Freddy Chavez - Senior (Network Security 2015)
- Michael Hoffman - Senior (Network Security, Network Engineering 2015)
- Louis Sandoval – Alumni (Artificial Life Programming, Advancing Computer Science 2014)
- Cody Fischer- Alumni (Game Programming, Game Design 2014)
- Flynn O'Hare- Senior (Game Design 2015)
- Derek Sinex- Senior (Game Design 2015)
- Angela Leifson- Junior (Network Security, Technology Forensics 2016)

Apps Developed by Alum

u a t a l u m n i

UAT alumni are leaders, innovators and business developers. Check out some of their apps for iOS, Android and PC. To download, visit the UAT Wall of App Fame, uat.edu/wall-of-app-fame

INDIANA STONE / TwinSky Games
Tim Winsky
Indiana Stone - iTunes Indiana Stone - Google Play

BITFISH / Lonely Road Games
David Townsend
BitFish - Google Play

THE LOST MEDALLION / Retora Game Studios
Tyler Coleman, Winston Powell
The Lost Medallion - iTunes The Lost Medallion - Google Play

A PLANT'S LIFE / Retora Game Studios
Tyler Coleman, Winston Powell
A Plant's Life - iTunes A Plant's Life - Google Play
A Plant's Life - Amazon

HELLO COLOR / Retora Game Studios
Tyler Coleman, Winston Powell
Hello Color - iTunes Hello Color - Google Play
Hello Color - Amazon

BREAD KITTENS / Bake450, Inc.
Mario Castaneda
Bread Kittens - iTunes

ANSWER UNDERGROUND / Meetup Media
Chris Jennewein
Answer Underground - iTunes

CHEMICAL CUBES / Half Empty Studios LLC
Bill Nega, Valeri Benidze
Chemical Cubes - Google Play

HAUNTED ESCAPE / Retora Game Studios
Tyler Coleman, Winston Powell
Haunted Escape - iTunes Haunted Escape - Google Play
Haunted Escape - Amazon

BALL BOOMER / Greg Froning
Greg Froning
Ball Boomer - Google Play

FLOWER CASCADE / Nullspace Entertainment, LLC
Stacy Layton
Flower Cascade - Google Play

CASH COW / Chillingo Ltd
Tim Winsky
Cash Cow - iTunes

WORLD WAR INFINITY / Cape of Good Games
Stefan Diekmann
World War Infinity - iTunes World War Infinity - Google Play

LUDO 3DX / Cape of Good Games
Stefan Diekmann
Ludo 3DX - iTunes Ludo 3DX - Google Play

WITCH VS ZOMBIES / Cape of Good Games
Stefan Diekmann
Witch VS Zombies - iTunes Witch VS Zombies - Google Play

DUNGEON ESCAPE II / Cape of Good Games
Stefan Diekmann
Dungeon Escape II - iTunes Dungeon Escape II - Google Play

TOON GOLF BUILDER / Cape of Good Games
Stefan Diekmann
Toon Golf Builder - iTunes Toon Golf Builder - Google Play

TOON EGG HUNT / Cape of Good Games
Stefan Diekmann
Toon Egg Hunt - iTunes Toon Egg Hunt - Google Play

MINI GOLF SPACE / Cape of Good Games
Stefan Diekmann
Mini Golf Space - iTunes Mini Golf Space - Google Play

DEFEND YOUR CASTLE / Cape of Good Games
Stefan Diekmann
Defend Your Castle - iTunes Defend Your Castle - Google Play

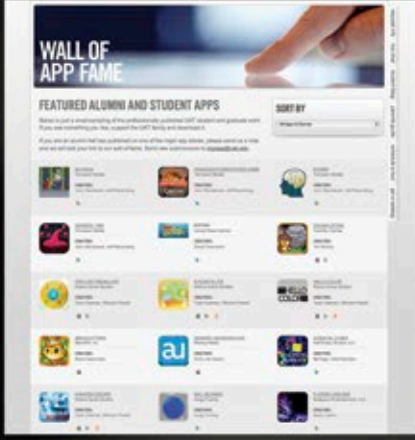
DUNGEON ESCAPE / Cape of Good Games
Stefan Diekmann
Dungeon Escape - iTunes Dungeon Escape - Google Play

MAZE 100 / Cape of Good Games
Stefan Diekmann
Maze 100 - iTunes Maze 100 - Google Play

POOL WITH FRIENDS / Cape of Good Games
Stefan Diekmann
Pool With Friends - iTunes Pool With Friends - Google Play

CARTOON ANIMAL MEMORY GAME / Cape of Good Games
Stefan Diekmann
Cartoon Animal Memory Game - iTunes Cartoon Animal Memory Game - Google Play

THE BRIDGE / Retora Game Studios
Mario Castaneda
The Bridge - steam



uat.edu/wall-of-app-fame

MAGICIANS AND LOOTERS / Morgopolis Studios
Brian Clifton, Justin Pereira and Dan Peschman
Magicians and Looters - Windows Magicians and Looters - steam

LITTLE RED GOBLIN GAMES / Little Red Goblin Games
Scott Gladstein and various other students and alumni

SUPER COMBOMAN / Interabang Entertainment Inc
Justin Woodward
Super Comboman - steam

AGE OF BLOOD / Galaxy Interactive
John Waynick
preorder

THESEUS: FIRST FLIGHT / BloodLeafStudios LLC
Jacob Lanthier
Theseus: First Flight - Google Play

GRAVE / Broken Window Studios, LLC
Tristan Moore, Aby Moore, William Tate, Daniel Strayer, Casey Graham

HEX HEROES / Retora Game Studios
Mario Castaneda

ADVENTURE TIME PRESENTS: TIME TANGLE / TwinSky Games
Tim Winsky, Winston Powell
Adventure Time Presents: Time Tangle - iTunes
Adventure Time Presents: Time Tangle - Google Play
Adventure Time Presents: Time Tangle - Amazon

Is it real, or is it



Oculus Rift VR?

There's virtual reality, and then there's Oculus Rift VR Technology developed by Palmer Luckey. With mind blowing visuals, engineering and software, Oculus Rift VR produces more than an immersive experience. The technology hacks your visual cortex and tricks your brain into thinking you're actually a part of the experience.

Luckey, founder of Oculus VR Inc., developed the Rift as Oculus' flagship product that's been heralded as "the most promising VR device in years" according to Wired Magazine. At first, it faced the same problem other companies had encountered for decades in their development efforts—motion sickness. That's the result when your visual system conflicts with your vestibular system which makes you want to throw up. In a collaboration with Valve, the problem was solved.

Oculus and its technology are ushering in an entirely new era of gaming interaction and communication. It's safe to say the communication possibilities are what attracted Mark Zuckerberg, Facebook CEO, to acquire Oculus for \$2 billion last March. Oculus introduces a virtual reality headset, the Rift, that many predict will revolutionize the virtual reality (VR) experience. More than video games, Oculus Rift VR could change how we communicate altogether. It's an exciting time to be in game development because UAT is one of the few universities integrating this emerging new technology into its programs.

What's even more groundbreaking is that the newest prototype ensures an experience without motion sickness.

Imagine the possibilities in gaming, social media, even teleconferencing, education and... vacations? In the future when you strap on the Rift headset, you could be "sitting" across the table from someone who is actually thousands of miles away, or at least their avatar. That's because Oculus also is developing VR Chat prototypes.

There's actually a demo unveiled by Epic Games that allows two players wearing Rifts to interact with each other's avatars in the same virtual living room.

Then there's education. How about bringing a classroom full of kids inside any museum in the world without standing in line or paying for admission? What about virtual vacations, "traveling" to locations you have only dreamed about?

Ultimately, VR's future rests in any number of unique, compelling experiences created by software. Your brain doesn't know the difference between a Rift experience and the real world. The list of potential uses is as vast as the brilliant minds that invent them.

UAT was among the first technology colleges making an early prototype available for students in its Game Development, Technology Leadership and Computer Science degree programs.

"What excites me about technology such as the Oculus Rift is the potential to further blur the line between virtual and real worlds, and the hardware that takes us there," says Professor Derric Clark. "Technology can be a barrier to the virtual world, but as technology advances, this barrier is evaporating, allowing the user to explore the world without technological constraint. Giving students access to this potentially media changing technology and seeing how far things can go is at the core of being a technologist and something I embrace here at UAT," he adds. This past summer, UAT offered a free workshop series on the Unreal 4 Engine during the Summer 2014 semester highlighting Oculus Rift's use. In the C++ code, there are many new initiatives that support Oculus VR, Linux, Valve's Steamworks and Steam Box efforts. Student innovation already is occurring that incorporates Oculus Rift VR into the design of leading-edge immersive social and game experiences.

EXAMPLES INCLUDE:

- > Students are building immersive Rift-compatible game experiences that incorporate the most advanced technology. Now that's leading edge game development fueled by the leader in advancing technology education!
- > Student Innovation Project Oculus Communications is another example. It's designed to build a digital hangout that creates a social networking environment, an early precursor to what potentially lies ahead in Zuckerberg's world. To date, there is no application that involves the Oculus Rift VR technology for social networking purposes. Designed to give the feeling of actually being inside a virtual reality environment, this project incorporates the innovations of Game Programming major Derek Mello, Game Art and Animation major Cameron Wrightsman and Game Programming major Karl Matthews, thus, players experience more. Other team members include Game Programming major Nicandro Batista, Game Art and Animation major Devin Gaviria, and Game Programming major Harrison Snyder.

Enter UAT students and the opportunities awaiting them to lead the future of advancing technology in this and other realms.



Derric P
Professor: Game Programming and Design

Anatomy of the Rift

Source: Wired Magazine June 2014

UNTIL NOW, VR WAS BLURRY, BUGGY, AND NAUSEATING. HERE'S HOW OCULUS BUILT THE FIRST HEADSET GOOD ENOUGH TO TRICK YOUR BRAIN.

THE BRAIN

The biggest challenge in creating realistic VR is getting the image to change with your head movements, precisely and without any perceptible lag. The Rift fuses reading from a gyroscope, accelerometer, and magnetometer to evaluate head motion. Even better, it takes 1,000 readings a second, allowing it to predict motion and pre-render images, shaving away precious milliseconds of latency.

THE DISPLAY

Even the best LCD can take 15 milliseconds for all the pixels to change color. The Rift uses AMOLED screens, which can switch color in less than a millisecond. Oculus also figured out how to deactivate those pixels rapidly so the image doesn't smear or shake when you whip your head around.

THE OPTICS

You want an image that fills your entire field of vision without distortion. Typically, that requires heavy, expensive lenses. The Rift uses a pair of cheap magnifying lenses, and Oculus developers distort their games so they look right when viewed through the optics.

POSITIONAL TRACKING

Previous VR headsets let you look around but not move around. The Rift's small external camera monitors 40 infrared LEDs on the headset, tracking motion and letting you crouch, lean, or approach an in-game project.



1984



1993



2000



2006



2018

MEET FACULTY

MEET MORE FACULTY
www.uat.edu/faculty

MEET STAFF

MEET MORE STAFF
www.uat.edu/staff



Associate Professor: Network Security

RUSS ROGERS

Russ started his career in the USAF, working for the NSA and DISA. As the Chief Executive Officer and Founder of two private companies, Russ authored or tech edited 20+ books on hacking and security. Russ speaks and teaches at security conferences around the world and is also one of the national organizers of the annual DEFCON hacker conference held in Las Vegas. Currently, Russ is Program Champion and Professor of Network Security at University of Advancing Technology. He has been interviewed on CNN, conducted research for DARPA and is a certified Arabic linguist through the Defense Language Institute and a certified instructor for the National Security Agency's INFOSEC Assessment Methodology and INFOSEC Evaluation Methodology courses.

AA, Community College of the Air Force
BA, University of Maryland
MA, University of Maryland

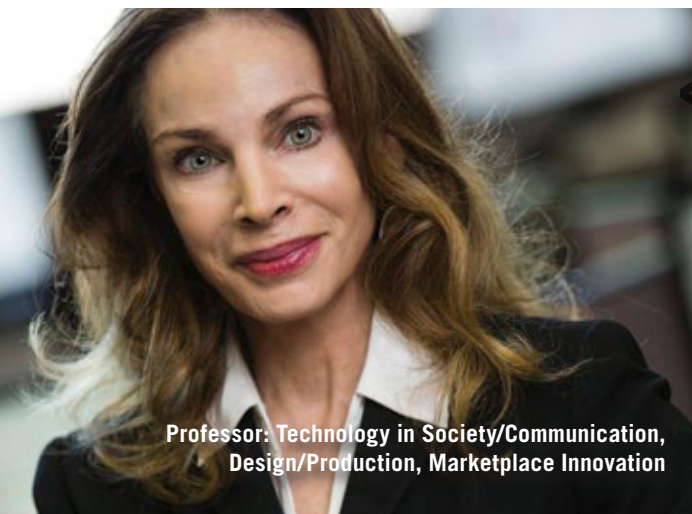


UAT Provost

DR. DAVID BOLMAN

Dave has created a university where the culture of innovation is celebrated and students learn the tools, techniques, concepts and responsibilities of applying technology in ways that lift up human society. During his tenure, UAT has grown from a single classroom of 13 students into a destination private college campus dedicated to advancing society through the wise use of technology. He also serves on the Board of Valley Leadership, is Chairman of the Board for the Leonardo Da Vinci Society for the Study of Thinking, a member of Arizona Business Leadership and an alumni of the FBI Citizen's Academy.

PhD Business Administration and Management/Northcentral University
MS Technology/Arizona State University
BS Computer Graphics/Arizona State University courses best thinking practices regarding how students learn."



Professor: Technology in Society/Communication, Design/Production, Marketplace Innovation

DR. NATASHA VITA-MORE

Originally from New York, Natasha Vita-More is an accomplished instructor, author, and designer who has devoted her life's work to exploring emerging technologies and their role in preparing us for the future. Among her long list of credits is her previous cable television show Transcendence Update in L.A., which introduced innovative tech-based fields as they relate to society and human enhancement. "I enjoy the students the most—watching them learn and put ideas into practice and working with them one on one to encourage them to understand the world and its multiplicity. My aim is to send them off with confidence, a sense of creativity and self-worth."

PhD Media Design and Technology/University of Plymouth, England
MSc Future Studies/University of Houston
MPhil Technology and New Media Arts/University of Plymouth, England
BFA Fine Arts, University of Memphis



Marketing Synergist

GERALD BOHULANO

Originally from Ft. Huachuca in southern Arizona, Gerald earned his undergraduate degree in journalism and mass communication from Arizona State University and graduated summa cum laude from Northern Arizona University earning his MEd. Throughout school he was involved in student life/government and his true passion is higher education thanks to his grandmother who was a teacher and his mentor. He's always loved technology and anime, and he considered himself a nerd growing up playing Pokemon, Sailor Moon and Super Nintendo.

"I like that students can come here and be who they are. I know what it feels like to not be yourself. Students don't have to worry about feeling different here."



Organizational Development Specialist

MEGAN O'DONNELL

Megan moved from Minneapolis to Arizona to connect with one family—her own—and ended up connecting with her second family at UAT. She's a supportive partner to students, connecting with them on cash balances, advising them of payment options and providing individualized counseling. Between her coworkers who make it fun to come to work and the students, she feels UAT is home. She's finishing her bachelor's in HR Management from Western Illinois University with plans to pursue her master's.

"I've worked at other educational institutions and UAT's environment and teaching philosophy are what set them apart. I like our hands-on, personalized approach to learning and the one-on-one support we provide."



Admissions Advisor/Enrollment Advisor

ALLEN CALDWELL

"Congratulations, welcome to UAT!" Allen loves being able to tell qualified students that once they're accepted after he has helped them explore their interests. But he doesn't stop there; he helps them enroll and begin classes. Originally from Phoenix, Allen has been in admissions for 15 years. He worked at a myriad of higher education institutions, including High Tech Institute and Arizona Automotive Institute. He combines his education in psychology and technology (systems engineer) to offer his best to students when it comes to advisement and support.

"UAT is family, and that's what I like best about working here... along with the quality education we offer and, of course, the students. Making a difference is why I'm in this field."

There's a giant, peculiar looking black box that houses a single computer chip, and some say it has the potential to crunch numbers faster than any other comparable machine on earth. It stands 10 feet high, is mainly a freezer and dubbed the D-Wave Two.

Google and NASA have teamed up to acquire the D-Wave machine, which they consider to be the most powerful piece of hardware today. Their goal is to develop quantum AI algorithms so they can be tested on real world problems and compare the speed and volume of calculations to conventional computers. Google wants quantum algorithms with revolutionary power that can advance the ranking of search results, personal assistants, ad placement and spam filtering. NASA seeks better algorithms for air traffic control, analyzing data and space exploration.

Operating with the principles of quantum mechanics, quantum computing is a growing field of science targeted on processing information at extreme high rates of speed using radical new physics involving infinitesimal particles such as electrons and photons.

There are indications that quantum computing offers a tremendous advantage when compared to traditional PCs, which traditionally code information in binary bits that are either 0 or 1, on or off. The quantum qubit, however, can be both simultaneously, resulting in extraordinary power far beyond conventional computers, and a vastly greater number of calculations being made at the same time compared to any other machine. This means that quantum machines could tackle certain problems, like searching a database or cracking encryption code, at blazing speeds, even compared to a supercomputer.

To bring this into perspective, in conventional computing, it takes 8 bits to store a single number between 0 and 256. In quantum computing, 8 qubits can store all 256 numbers at once. Every time you add a qubit, you double the total number of possibilities.

Only five D-Wave Two machines exist in the world, including the Google-NASA one at

Computer speed takes a quantum leap

NASA Ames Research Center in Mountain View, California, just a few miles from the Googleplex. Lockheed Martin has one and so does the NSA.

Stored in the box at a temperature 150 times colder than deep space (-459.6 degrees, almost 2 degrees colder than the massive gas cloud, Boomerang Nebula, considered by astronomers to be the coldest place in the universe), the computer chip isn't made with the tried and true materials like its predecessors. Rather than being based on the usual silicon, the chip is based on tiny loops of niobium wire.

To prepare for this emerging new world of computing, Professor Victoria Schaufuss is teaching her computer science students parallel programming.

"Quantum computing will be the ultimate parallel programming," she says. That's where large problems can often be divided into smaller ones, and solved simultaneously.

"To give you an idea of the full scope of quantum computing's potential, just add 150 zeros after a 1 and you'll have even more than the total number of atoms in

the known universe," Professor Schaufuss explains. "That's the ultimate power of quantum computing and this is our future. People need quantum computing because speed is essential to making critical advances in technology," she adds. "But there are currently hardware limitations that presently make it a challenge to fully unleash this power."

So is the D-Wave Two actually a quantum computer?

There's still debate in the scientific community, which questions whether it can actually provide something different than what's already available on conventional machines.

Google recently brought in John Martinis, former physics professor at the University of California—Santa Barbara and one of the world's leading experts in quantum computing. He's expected to advance the company's progress in this field.

Among the hurdles to overcome, include what's referred to as decoherence, a loss of quantum information that results in instability and is one of the most important issues in this field of research. The problem is that they stay in a quantum

state for only a fraction of a second. Interference from other particles easily disrupts this state. This has resulted in challenges when it comes to making any reliable calculations with a quantum computer.

Already, there's notable progress being made by Martinis and his Quantum AI team. Last April's Nature detailed their work involving back-up qubits as a possible solution. The team is planning to build their own quantum processors and even upgrade the D-Wave Two, taking the basic ideas of D-Wave and combining that with the research and progress the Google Quantum AI team is making while still collaborating with D-Wave scientists.

UAT students in Advancing Business Technologies, Advancing Computer Science, Cyber Security, Programming, Hardware Creation and Digital Arts have a growing number of opportunities to be game changers in this innovative age of computer technology.

"When you change the way you look at things, the things you look at change." - Max Planck, Father of Quantum Physics



Power and Cooling

- > "The Fridge" is a closed cycle dilution refrigerator
- > The superconducting processor generates no heat
- > Cooled to 150x colder than interstellar space (0.02 Kelvin)

A Unique Processor Environment

- > Shielded to 50,000x less than Earth's magnetic field
- > In a high vacuum: pressure is 10 billion times lower than atmospheric pressure
- > 192 i/o and control lines from room temperature to the chip
- > "The Fridge" and servers consume just 15.5kW of power
- > Power demand won't increase as it scales to thousands of qubits

Processing with D-Wave

- > A lattice of 512 tiny superconducting circuits, known as qubits, is chilled close to absolute zero to get quantum effects
- > A user models a problem into a search for the "lowest point in a vast landscape"
- > The processor considers all possibilities simultaneously to determine the lowest energy required to form those relationships
- > Multiple solutions are returned to the user, scaled to show optimal answers

Master the ghost in your machine



Advancing COMPUTER SCIENCE

- > 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.

LEARN

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

LEARN, EXPERIENCE AND INNOVATE WITH THE FOLLOWING DEGREES: Advancing Computer Science, Artificial Life Programming, Business Technology, Digital Maker and Fabrication, 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, Technology Forensics, Technology Studies, Virtual Modeling and Design, Web Design



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

READY SET GO

LEARN MORE
www.uat.edu/admissions

DID YOU KNOW?
UAT's Paranormal Society, a student club, has been commissioned to investigate actual cases for the City of Phoenix and private residences.

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.
- > Scholarship evaluation at application.

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.

SUMMER 2015 SEMESTER

Semester: May 11 — August 21
Midterm Break: July 2 — 4

FALL 2015 SEMESTER

Semester: September 8 — December 18
Midterm Break: October 23

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

uat.edu/apply
uat.edu/scholarship

CHECK OUT OUR BLOG
blog.uat.edu



Major: Game Design
Home State: Pennsylvania

ROBERT PRATT

Perhaps one of the most frustrating parts of any project (game projects in particular) is that if you are trying to create a plan for anything, you have to allow for the fact that things will go wrong. You could have a plan that directs every last person in every single action down to the last second, but if you don't plan for problems to arise then you might as well throw the whole thing away. It's something that frankly all UAT students are taught, but it's also one of the most easily forgotten rules, both in school and just out in the professional world. Just plan time for bug fixing or error checking, at least that way when the little hiccups happen they're not eating into the time of something more vital. If by some miracle you don't have any issues during development then you are left with "oh no, I've finished early... What will I do with all this free time??"

See what else Robert is up to at www.uat.edu/MeetRobert



Major: Game Art & Animation
Home State: Maryland

KARINA BARRON

The start of this semester concludes my first year here at UAT. It has all gone by so fast! It's hard to believe how much I've learned and experienced over these last three semesters. I came into UAT pretty much knowing nothing about my degree and with only fine arts experience, and now, after three semesters, I am confident in my abilities with the programs I've learned. I've also determined what my strengths and weaknesses are. I'm excited to keep pushing myself for the rest of my time here to get better and hone my talents. On another note, this is the first week of classes! I've taken a smaller load of classes this semester due to my internship. The classes I'm taking are: Communications in Technology, Senior Innovation Project 1, Game Texturing, and Anatomy for the Artist. I'm super excited for this semester, despite how busy I'll be.

See what else Karina is up to at www.uat.edu/MeetKarina

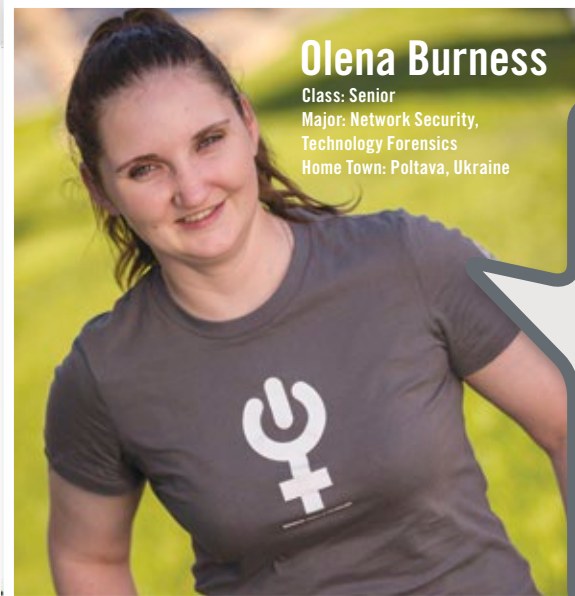


Major: Advancing Computer Science & Network Security
Home State: Indiana

NICHOLAS DILEY

Originally from southern Indiana, Nicholas is a third semester student and Student Ambassador at the University of Advancing Technology (UAT). From the time he first started managing a computer at a young age with the help of his dad, he has been fascinated with the inner workings of technology. Since high school, he has developed a stronger desire to work with machines in areas such as programming, coding, and network security to protect and secure the data within our hardware and the transference of such. Nicholas is dual majoring in both Advancing Computer Science and Network Security not only to fulfill a growing need for such specialists but also to better the industry and enhance security for more people in the digital realm.

See what else Nicholas is up to at www.uat.edu/MeetNicholas



Olena Burness

Class: Senior
Major: Network Security,
Technology Forensics
Home Town: Poltava, Ukraine

Q: HOW IS UAT DIFFERENT FROM OTHER TECHNOLOGY COLLEGES?

Leading-edge industry knowledge taught by the best. UAT's Tech Forensics and Network Security programs are probably the best in the state because of the instructors. They are working in the field while they teach so we're always learning what's really out there. No other college, in my opinion, offers that high level of faculty interconnectivity.

"UAT also opens doors to opportunities. I was selected as a volunteer for DEF CON, and got to attend DEF CON as well. When our UAT group was tasked with hacking the electronic badges for DEF CON, I was the first to do it. My instructor was so proud of me but not as proud as I felt about myself and what I can accomplish."

UAT DATA

University of Advancing Technology (UAT) is an elite, intimate, private technology University focused on educating students in advancing technology who desire to innovate for our future. Our technology infused, urban campus in Tempe, Ariz., is a technology nexus; a collection of technophiles, tech geeks and mavens of the digital world that evolve into top technology executives, master programmers, cyber warriors, forensic sleuths, robotic engineers, interactive filmmakers, and game innovators for entertainment and government animation applications.

UAT's academic majors focus on expanding, new and rising technology such as the **Advancing Computer Science degree, Cyber Security degree, Emerging Technology degree and Robotics and Embedded Systems degree.** This technology College has the elite status of being among a select few 100 percent STEM-based universities in the nation. Our unrivaled computer science degree programs are a benchmark of success within academia. UAT is an ideal environment for technology degree students who value uniqueness and the power of advancing technology as well as the rigors of a traditional education.

ACCREDITATION

UAT holds accreditations and certifications from such organizations www.uat.edu/accrreditation, 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.

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

LOCATION

Tempe, Arizona (Phoenix Metropolitan area)

2015 TUITION

Undergraduate tuition: \$11,575.00 per semester
Graduate tuition: \$8,250.00 per semester
UAT-Online tuition: \$8,100.00 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

- 15** is the average class size with
- 1000** plus students from all
- 50** states and
- 4** of the seven continents that average a
- 3.07** incoming GPA scoring an average of
- 1532** on SAT, and
- 23** 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 2013 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.

Robotic Limb Designed to Improve Life for Vets

People missing a limb can feel like they are missing a piece of themselves. As a former marine, David Strait watched some of his injured friends struggle with their prosthetics and wondered why there isn't better, more accessible robotic prosthetics available. It triggered something in him.

The Tiffin, Ohio native was inspired to solve a real-world problem for wounded veterans—timely, affordable access to higher quality prosthetics. So he devoted his Student Innovation Project at UAT to developing his own technology and designing the neural prosthetic. It's an open source, 3D printable prosthetic arm with an Emotiv EEG headset that controls the arm with your mind thanks to his unique Python-language interface.

Together with Professor Mark Fedasiuk in UAT's Robotics and Artificial Life programs, he designed a Python programming interface in UAT's Makers Fab Lab. The software serves as an interface and a unique training suite.

Brainwaves are trained to control a task—in this case, a hand. Each grasp is different, so each one has to be linked to a singled out frequency in the brain. One targeted brainwave makes for one motion, such as closing all fingers to make a fist.

David's Emotiv EEG headset interprets EEG brainwaves into useable Python code. Raw EEG data is translated with a Python program to initiate movement in the prosthetic device just by thinking. His goal is to create sensors that will go directly into a baseball cap or sleeve so it can be worn discreetly all day.

David checked out hundreds of colleges from his barracks and ultimately decided on UAT because of its comprehensive robotics focus. He registered just two months before his discharge. When that day came, he drove straight from the Marine Corps to UAT.

He considers Mark Fedasiuk one of his mentors. "Professor Fedasiuk is very good with circuitry and has built a number of different robots," says David. "We are a great team."

"I must say I have never seen a student with as much drive, determination and perseverance as David," says Professor Fedasiuk. "His attention to detail and level of completeness is hard to rival. It is exciting to have students seeking innovation in design to help other people."

What David likes the most about UAT and the robotics program are the resources. "I've never been a part of something that has such pride in keeping up with the latest technology. If the University knows something will enhance a student's learning, they will invest in it. Students create amazing things every year and it's good to be a part of those teams. Their passion is to ensure students have the latest technology to work with."

David's innovative project is already garnering widespread attention. He recently was featured in AZ Business Magazine in an article "The Future is Now" that also highlights UAT's role in advancing technology education and driving every student to be an innovator of technology. In order to graduate, they must innovate, according to Jason Pistillo, UAT President. "We have fanned the flame of innovation with this new requirement."

David is lucky to be alive. And now is looking toward a future of robotic prosthetics in his quest to help injured vets feel the same.



**Inventor
to Watch!**

HCI/
Maker
grad
dishes
up
career
success

Relocating from her home in Phoenix, Ariz. to “Colorful Colorado”, just south of Denver in Englewood, alumnus Jaylyn Dawson is enjoying the magnificent scenery and her new job as User Experience Designer for Dish Network.

Jaylyn, who graduated in 2013 with degrees in Human Computer Interaction and Digital Maker and Fabrication, loves all things design, and Colorado is where it’s at.

Her job responsibilities at Dish include taking environment design requirements and conceptualizing what those changes will look like for Dish users. She also spends time conducting observations and interviews to uncover problems. She also spends a considerable amount of time educating colleagues about design decisions and how they relate to the user experience.

“The thing I love most about being a UX designer is getting to know people, talking to them and having them walk

me through what a day in their life is like. I also enjoy design discussions where my colleagues and I collaborate and try to find the best solution to a problem that makes the most sense for the users.”

Design is all encompassing for Jaylyn. She emulates UAT’s emphasis on continual learning by reading books and articles when she gets home and then applies all of the methods and techniques she has learned to her work. Jaylyn’s love for design also is evident in her cooking, baking and crafting.

Jaylyn found UAT through a random Google search. She had already gone to a big state school but it was too big and impersonal for her. Her parents were also helping her pay for her education and they really wanted her to stay in AZ, so after looking into the school and then taking a tour, it seemed like a good fit.

What really influenced Jaylyn’s decision to go to UAT was its small size and the tons of technology available to her as a student. Once she got here, it was both the faculty and her experiences there that helped prepare her for the real world.

Jaylyn is particularly thankful for Professor Vesna Dragojlov and Professor Craig Belanger. “They had a lot of passion for their respective subjects, and that passion really translated well into learning and understand concepts I had never approached before my time at UAT.”

“Professor Dragojlov has always pushed me to do more and do better,” says Jaylyn. “She has had a ton of influence on me as a teacher, mentor, and as my program champion. She’s also the one that made it possible for me to study abroad in France which was an amazing opportunity to experience the world outside of North America.”

“The best thing about going to college here was all the opportunities that UAT helps to foster. I studied abroad in France, I was the art director for a TEDx event, I showcased one of my projects at the Phoenix Art Museum, went to the HCI International Conference, and I was part of the My Music Mosaic project which allowed me to get some hands-on, real-world experience.”

Jaylyn got involved in other ways as well, that also helped her feel connected to UAT and her profession. She volunteered at two Black Hat conferences, served as Vice President in Student Government, and was a Student Ambassador, which honed her presentation and communication skills. She also kept a regular blog about her experiences that received hundreds of views.

It was Jaylyn’s study abroad experience at the Ecole Supérieure d’Art et de Design d’Orléans that she says was “mind altering.”

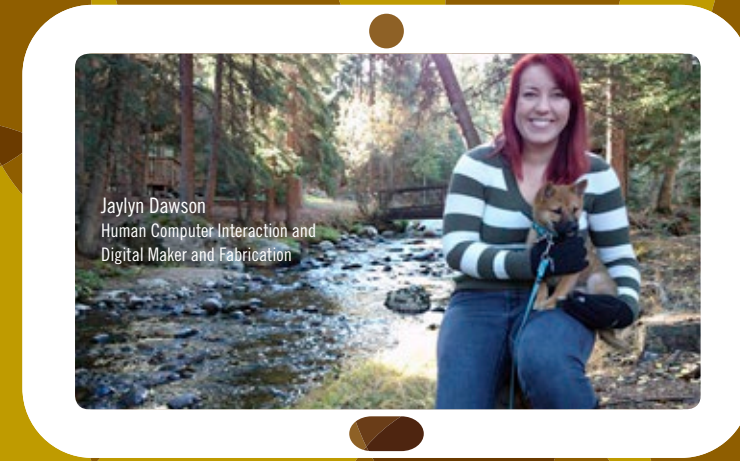
“I took for granted the conveniences of the American big city lifestyle and France isn’t like that at all or at least not where I was in Orléans. Also, the schooling and expectations there really helped me realize different ways of solving problems. Design was more about exploration there. It was less about solving a problem and more about finding alternatives or new ways of doing things. I think the biggest thing studying in France gave to me was confidence. If I can go to a foreign country where I barely speak the language and survive for 5 months, then I can face a

lot of other challenges. I mean, I lost my passport and wallet and that experience alone taught me the notion of ‘what doesn’t kill you makes you stronger.’”

Jaylyn’s experiences during college have definitely made her stronger. Fueled by what she has accomplished and what she aspires to accomplish down the road, Jaylyn’s goal is to one day become a Chief Design Officer.



Success
didn’t
just
happen
for
Jaylyn;
it was by
design



JAYLYN'S CAREER ADVICE

My advice is to get out there and network. If you can’t talk to people who are on your same level how are you going to be able to interview users or get client feedback or present your findings? Start now and it’ll only get easier. Otherwise I recommend getting involved in whatever activities you can find, you never know what skill or experience you’ve had might resonate with an interviewer and the more experience you’ve had the more interesting a candidate you are.

CrossRealm

Innovates
New Realm of
Digital Video
Production

[Composite Image]



THE TEAM

Dylan White (Digital Video)

Eric Reed (Game Art & Animation)

Gabrielle Vielle (Game Art & Animation)

Reginald Riley (Digital Video)

Austin Prendergast (Digital Video)

Natasha Stringham (Digital Video)

Eric Reed, Gabriel Vielle,

Jonathan Ellis (Game Art and Animation)

Stephen Panagiotis (Game Programming/Advancing Computer Science)

Pedro Pappy Perez (Game Design)

UAT students are innovating digital video technology rivaling the likes of what's been used in movie blockbusters *Avatar* and *The Hobbit*—but without the proprietary software, huge R&D budgets, and giant teams of professionals.

With CrossRealm, UAT's Digital Video Program is doing this just as effectively on a smaller scale with off-the-shelf hardware and software, a custom Unreal script, and a team of undergrads from cross disciplines to invent a more affordable solution.

[Native Image]



Digital Video major Dylan White is the team lead for CrossRealm, as well as Co-Producer & Co-Script Writer with Professor Paul DeNigris (for both positions), the program champion. He reached out to the Game Art, Game Programming, and Game Design programs to recruit students. Other DV students volunteered to join the project on their own after Professor DeNigris and Dylan pitched the project.

Together with Professor DeNigris, Dylan and the team are solving a real-world problem—development of an inexpensive, mobile, easy to use system that allows the process of filming on a green screen to be more efficient.

"I could not have picked a better mentor than Professor DeNigris," says Dylan. "He was able to help provide the resources we needed for this project, as well as a vast pool of knowledge to draw from when the challenges we faced required a little more."

Mashing both the gaming and digital video worlds, CrossRealm renders 3D environments, then composites them with live green screen footage in order to view the scene properly as it is being filmed. This malleable background can be seen by a director during production of a film, enhancing filmmaking quality and significantly increasing film completion rates.

In the film industry, larger studios can afford to create expensive software and equipment to replicate camera movements in a 3D environment. But for smaller studios and independent filmmakers, they confront issues that occur during the process of filming on a green screen when the cinematographer, director, and even actors sometimes lose track of where they are in a particular environment that will eventually replace the screen. It's hard to orient yourself within a scene without any landmarks or points of reference. Cinematographers have a hard time filming a shot at just the right angle, and even if they do, sometimes the environment is rendered inaccurately to the needs of the footage. Directors can't always place actors exactly where they need to be, and actors sometimes miss their marks when they can't see the world around them.

UAT's Blackmagic Cinema camera was rigged with motion capture sensors to track movement. A real-time composite of the camera's image is on top of an environment rendered in the Unreal game engine. The motion capture sensors on the rig move the camera in Unreal, in synch with the real-world camera. This allows for movement to be tracked providing precise control over actors and objects in a virtual scene on set without having to wait for post to start.

"CrossRealm came about because I wanted to make a film using game engine technology ever since I saw the demos of Unreal and CryEngine a few years back," says Professor DeNigris. "I was also fascinated with the on-set monitoring systems James Cameron's team had developed to be able to see digital environments in real-time while filming *Avatar*. I often discuss these sorts of "innovation" ideas with my students as possible future projects and Dylan

really latched onto this particular idea. "He took the reins and recruited a cross-discipline team of students from DV, Game Programming, Game Design, and Game Art and Animation." Together this team had to figure out how to get a number of disparate, unrelated, off-the-shelf systems to work together as if they were all one cohesive unit. Professor DeNigris adds. They had to get the motion capture sensors to capture the movement of the camera rig, accurately send that data to Unreal, composite the output of the camera with the output of Unreal, and finally send the composited output back to a viewfinder on the camera rig – no small task considering every part of the puzzle was made by a different manufacturer.

The project is currently in its post-production phase, and has been captured on film in a trailer available on YouTube. Dylan hopes the system developed by the project is used, at the very least, by future UAT students. Marketing the process they've developed has been discussed, with the thought that it would be fairly easy to market towards independent filmmakers and small studios who are filming with green screens.

"We were in completely new territory and weren't even sure we'd be successful," says Professor DeNigris of the process to create it. "But these students knocked it out of the park!"



WHAT'S

HOT

HOT

NETWORK SECURITY



RUSS ROGERS

Professor and Program Champion: Professor Rogers speaks and teaches at security conferences around the world and also is of the national organizers of the annual DEFCON hacker conference held in Las Vegas.

AA, Community College of the Air Force
MS, Computer Systems Management, University of Maryland University College
BS, Computer Information Systems, University of Maryland University College

I've published as an author, co-author, contributor, or tech editor in more than 20 books on hacking and network security; I'm currently the chief of Operations for the DEF CON hacking conference; and I've been consulted for numerous media outlets, including CNN, as a subject matter expert in the industry.



HUMAN ENHANCEMENT TECHNOLOGIES

NATASHA VITA-MORE

Professor: Vita-More is an accomplished instructor, author, and designer who has devoted her life's work to exploring emerging technologies and their role in preparing us for the future.

PhD, Media Design and Technology, University of Plymouth, England
MPhil, Technology and New Media Arts, University of Plymouth, England
MSc, Future Studies, University of Houston

My multi-media designs were featured in Exhibition: "Bone Density," Evolution Haute Couture: Art and Science, in the Post-Biological Age," National Centre for Contemporary Arts, Kaliningrad Russia.

My own published book (co-author): The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future (Wiley-Blackwell Publishing, 2013).

NOT

Big government surveillance and oversight is a sure sign of the "dark side of the force" for 2015. Hackers, security professionals, and the public in general are tired of feeling imposed and tread upon by the Government. The biased media circus that continues to perform knee-jerk and sensationalistic "reporting" on critical hacks and security issues only leads to mistrust and misinformation for the public. The Sony hack is a good example of this, where it appears a vocal majority of hackers don't believe this was originated in North Korea.

NOT

Wearable technology for human enhancement can be unwelcome if techno-devices do not fit social lifestyles. Designs looking mechanical and cold can be off-putting and distract us from people wearing them. If wearables are used to enhance, social and ethical concerns about how far to go in augmenting the body arise. Are we ready for wearable enhancements that are not just attached to the body but implanted into the body, such as nano robots? Will there be a line drawn for a person's rights? This will bring up social discussions and political debates and more facts need to be known in order for society to understand the pros and cons.

HOT

GAME ART AND ANIMATION

JORGE PORTILLO

Professor: As a traditional 2D animator, Professor Portillo has held a variety of industry positions ranging from 3D/2D Game Art Generalist, Graphic Designer, Motion Graphics Artist, Video Editor and Art Director.

BA in Media Arts, Art Institute of Phoenix



I have experience in Game Production where as an Art Director I managed a team of creative artist to produce an array of online casino games.

NOT

Educational games service the player's needs by exposing them to a new interactive learning experience. They're able to learn through challenges and problem solving techniques. Although the player (student) is learning, educational games tend to be dull which lead to disengagement. One of the major aspects of creating a great game is its "fun" component. Without the fun, the player will easily lose interest. Educational game developers should focus on engaging players through fun-learning gameplay rather than teaching them topic after topic.

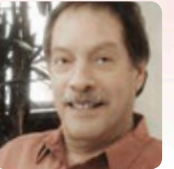
HOT

ADVANCING COMPUTER SCIENCE

MARK BUCKLER

Professor: Mark Buckler has extensive experience in object oriented and core programming, architecture of software engineering solution development, multiple computer science certifications, and languages hardware.

BA, Arizona State University; MBA, North Central University



Oracle Certified Professional, Java CE6

Subject Matter Expert and Certified Item Writer who develops professional certifications for Microsoft.

NOT

One of the widely discussed trends of the past few years has been the decline in PC sales and the rise in sales of mobile devices such as smartphones and tablets in the developing world. In India, for example, PC usage has declined sharply while smart phone sales have more than doubled.

WHAT'S NOT

GEEK 411 HAD THE CHANCE TO CATCH UP WITH TWO UAT ALUM AND ASK THE BURNING QUESTION:

What really happens after UAT graduation?

Opportunity, which sometimes can surprise you. A job of course is the goal, but it's all about building connections that continue well beyond graduation and sometimes making adjustments in your thinking and in your career path. And being open to new growth opportunities you might not see coming on graduation day.

That's what happened for two UAT alums, highly-respected tech leaders taking the world by storm. They returned recently to their old stomping grounds as guest speakers for UAT's annual Tech Forum—Erin Ali, Senior Producer at Blizzard Entertainment, and James Montemagno, Developer Evangelist at Xamarin. They knew each other at UAT but their friendship, together with their respective spouses, grew after graduation. They have stayed connected thanks to their shared but decidedly different passions for technology and the reality TV show, Project Runway. From their opposite ends of the country, they text each other every week to catch up on the latest developments.

Erin Ali 2007 Graduate

Erin, a 2007 graduate in Multi Media, spoke at Tech Forum about how opportunity shaped her career, and about the importance of networking. When she was in college, all she thought about was the design, art and engineering aspects of launching a game. But there are other realms to consider. Only six months after graduating from UAT, she got her first job in the game industry, but she's doing something different. She's working in production on support teams that coordinate all aspects of shipping a game. And she's really good at it.

She resides in Irvine Calif. where Blizzard Headquarters is located. She's been there for six years and was promoted to Senior Producer last June.

"In college, I had this fear that if I didn't fit within engineering game design and art, I wouldn't make it in the game industry. When I actually got a job, the role wasn't in core game development after all," says Erin. "There's so much more to getting a game out there, more than what a lot of people realize," she says.

Her first job was shipping games at Cheyenne Mountain Entertainment, where she discovered this entirely new and fascinating realm in the game industry. Then, it happened. She had made a connection with a former speaker at Tech Forum who just happened to know someone at Blizzard. This helped open a door for her to score an interview.

"I started out on a team called Battle Net, a building development team. Worked with engineers, set up the infrastructure for billing. What I realized was that taking the job at Blizzard ultimately helped me find what I'm doing today—support groups—marketing, legal, finance, platform teams launching and shipping a game, IT, all play an important role in launching a game."

The takeaway is, students should be open to the bigger world of game industry. If you're not passionate about game development, there are other areas for you.

"I've shipped over six or seven titles, including World of Warcraft, Diablo 3, and other world class games," says Erin. "I've only been able to accomplish that because of everything else I did."

What has she learned since graduation? A lot, including not letting fear stop you. "The world is yours—you have to push for it, own it, go for it."

James Montemagno 2008 Graduate

As UAT's 2008 valedictorian, James started his path with a game development major at UAT, but ultimately switched to software engineering.

He learned that just because you start along one path doesn't mean you shouldn't explore another. Following college, James posted his resume on Dice and began working right away, ultimately transitioning from games to enterprise level software to mobile app development. Now, he's found his calling in the mobile app realm as a Developer Evangelist at Xamarin.

Upon discovering his passion for the mobile app world, James recalls his first days at Ceton Corporation that took him down this new path. Right after he started, they came up to him and said "We're about to go to CES and demo in two months—and we need apps for all platforms. You're our developer, GO!" He did.

He fell in love with app development, so he started talking and blogging about it. Twitter helped him connect with Xamarin in Seattle. "I had a podcast, and my old boss who had moved to Xamarin listened to it and offered him a job. Within a week I had accepted the job and I was moving to Seattle. It was all off of web and Twitter together. These are the connections you can make."

Now, James creates heroes, traveling around the world giving presentations about Xamarin's app development opportunities for developers. And that's what he spoke about at Tech Forum.

"My entire goal is supporting anyone who is getting into development of any kind, especially mobile app development," he explains. "I want to make everyone as successful as I was getting into the industry. Half my job is emails, development, presentations, talking with developers one on one. It's a 200 percent job. That's my life after UAT."

James also touches on dramatic shifts in the gaming industry, and how fast they're occurring. "Apps are disrupting the entire game industry," he explains. "Today, the idea is you don't need a 400-man team and five years of development to get to 50 million users. You can be a single developer with a passion and you can release an application and get a million, two million or even 50 million downloads and be the next Angry Birds. So the opportunity is to get in now, while mobile is transitioning how we live."

FROM BILLS TO BITCOINS

Will a digital currency transform our world?

Want to buy your favorite electronic gadget from TigerDirect or NewEgg? How about playing that hot new online game through Zynga? Rather than using cash or credit, there's a new way to pay for many products and services—with Bitcoin, an experimental internet currency and payment network emerging that is changing how we view and use money. It's an alternative to your credit card, cash and loose change.



>> While Apple Pay, Google Wallet, and PayPal are examples of credit card payment facilitation methods, Bitcoin is different. In fact, there are no banks or any central organizing body like the Federal Reserve regulating its use. You can get bitcoins by accepting them as a payment for goods and services or by buying them with your bank account.

Unlike bank accounts, however, Bitcoin wallets are not insured by the FDIC. Bitcoins are stored in a “digital wallet,” a kind of virtual bank account that allows users to send or receive bitcoins, pay for goods or save their money. You can send bitcoins or receive them via mobile apps or computers—similar to sending cash digitally.

This digital currency is open source; accessible to individuals, businesses and developers, and can be exchanged anywhere in the world with the touch of a key stroke, with nominal or no fees. All transactions are logged in a public database.

Is Bitcoin a technology boon? Or boondoggle? You decide.

Bitcoin's emergence in the currency market has been bumpy. Since Bitcoin was created in 2009 by an anonymous person using the alias Satoshi Nakamoto, Japan-based exchange Mt. Gox collapsed in 2014 and lost nearly half a billion dollars of investors' money. A security breach occurred earlier this year at Bitstamp, a Slovenia-based exchange. The value of a bitcoin, determined by trading on existing exchanges, has fallen from \$1,200 (in late 2013) to about \$240 today. To date, more than \$100 million in Bitcoin transactions have been processed. In 2013, about 37,000 people had Coinbase wallets. By 2014, that number surpassed 1.5 million.

Coinbase is an example of an international exchange (providing a digital wallet) that allows you to securely buy, use and accept Bitcoin currency. Although it isn't backed by a central government, the exchange recently became the first licensed U.S. exchange to open. Coinbase is backed by \$106 million from venture-capital firms, banks, and the New York

Stock Exchange. And it has insurance, offering some assurance to traders their money won't vanish.

Opportunities abound to buy bitcoins, sell it, exchange it, invest in it or develop the next technology for it. Some global businesses are using Bitcoin. International payments are easy and cheap because bitcoins are not tied to any country or subject to regulation. Small businesses may like them because there are no credit card fees. Some are investing in Bitcoin.

Have you used it yet? Because Bitcoin allows you to exchange money differently than with banks, it's important to take time to do your research prior to using Bitcoin for any transaction. Bitcoin should be treated with even more care than you would give to your traditional wallet.

Bitcoin transactions are secured by military grade cryptography, giving you control and protection against many types of fraud—if you take the steps necessary to protect yourself.

The future will not just reveal more about how much Bitcoin is used but also by whom and all the potential that exists to navigate its future direction. Software developers have the freedom to build on Bitcoin's open platform

“Whether the future of money is Bitcoin or something more like what Apple Pay is doing, the nature of how we transact funds and translate our wealth to currency is going to change from what all previous generations of humans experienced,” says Dave Bolman, PhD, UAT Provost. “These present exciting opportunities for our graduates to play a key role in innovating to capture and shape the



direction that this technology is arcing towards,” Dr. Bolman adds. “UAT focuses students on creating with advancing technology within studio sandboxes. Add to that how we engage students on the world impact of emerging technologies and suddenly when something like Bitcoin and other monetary transaction options present themselves, our students are exploring it with depth and then inventing the applications, processes and enhanced security measures that make exciting new technologies viable.”



WHAT'S APPEALING:

- > Designed for everyone: individuals, businesses and developers
- > Instant peer to peer transactions
- > Worldwide payments in a matter of minutes
- > Zero or low processing fees
- > Currency, not credit
- > Open Source
- > Not owned by anyone or entity
- > No banks, no central organizing body, no middle man
- > No bulky paper currency or coins

WHY TO BE CAUTIOUS:

- > Still experimental
- > More vigilance needed to ensure security
- > Bitcoin price can be volatile
- > No central organizing body or regulation
- > Bitcoin payments irreversible
- > Not anonymous
- > Instant transactions are less secure
- > Subject to government taxes and regulations



Nowadays, there's an app for that, or an opportunity to create one. The mobile app industry has evolved faster than anyone anticipated. By the end of 2015, the total mobile apps market is projected to be worth \$25 billion (with a "b") worldwide, according to Markets and Markets research. Not only is the sheer number of apps growing, but the variety of different apps too, with demand for more that caters to our every need. That means more opportunities for programmers and designers.

What's App? More Apps Fueling a Growing Market

Take, for example, new messaging apps, growing in number because many of us are becoming increasingly wary of the

permanence and public exposure of Facebook. Whats app, Snapchat, Kik, Line, KakeoTalk, and WeChat are the new chat apps with reduced text messaging fees that foster a natural communication between ad hoc groups of friends. And to participate, you don't have to set up yet another social network.

Find your new digs with apartment finding apps such as Gimme Shelter, Lovely Rentals, Hotpads Mobile and Walkscope. Need help moving or feathering your new nest? Moving Day, MyMove, Paint My Place and Homestyler Interior Design can help.

There are anonymous apps too for those of us who want to broadcast our messages without anyone knowing who we are. Secret, Wut, Confide, Whisper, and Yik Yak allow us to broadcast to everyone without revealing ourselves.

With 287 million active mobile gamers in the US alone, mobile is one of the fastest growing platforms for games and other consumer software. More UAT students are entering the world of mobile app development, and wasting no time in developing innovative, niche apps.

Bitfish is one example of a newly published mobile game app developed by David Townsend, Game Programming major and 2014 UAT graduate. Your goal is to eat everything that you can wrap your mouth around while avoiding anything bigger than you. This fun app is getting rave reviews, and Dave credits UAT for all the support he received throughout his education that is helping him launch his career in app development.

Then there is a bunch of apps being developed by Terrasect Mobile LLC started by Game Programming major John Wisniewski and Game Programming major Jeff Rosenberg in 2014. Along with their team, they already are blazing a trail in game apps for entertainment and business with SleepBlue, My Ninja, PiGame, Balloons and Francisco's Brick Pizza Game. And that number is growing... quickly. And they formed sister company Aftermorrow Productions for PC app development.

Originally from Charlotte, North Carolina, John made the journey to UAT in Tempe, Ariz. because it was the only school that taught game development. UAT had a niche and he wanted to create one too.

"With so many people developing, you have to find a niche," says John, a 2014 graduate who also works for sister company Aftermorrow Productions that develops apps for PC. He, Jeff and the team are developing apps for games as well as to help businesses attract and reward customers, like the Francisco's Brick Pizza Game where you align pizza toppings and earn points for discount coupons. They're winning more contracts from outside businesses, musicians, real estate companies and more.

John credits UAT for the real-world experience he gained. "Without Game Jams, I wouldn't have learned as much because it's experience you just can't get in the classroom." He adds UAT provides opportunities for students to grow. "At the large state universities, you learn exactly what they want you to learn – only their projects. Here at UAT, you get a lot more freedom to work on the things that are going to get you jobs that make money."

UAT sophomore Molly Cuddihy is an artist with Terrasect, LLC and Aftermorrow Productions. The Game Art and Animation major from New Boston, Michigan has worked on Balloons and Francisco's. She really enjoys working on apps for the

PC with all the tools and resources UAT provides, and appreciates what a great asset the professors are. "They really help you out."

"UAT students like those on the Terrasect Mobile team are taking advantage of mobile's ease of entry by throwing together and launching games often and quickly," says Professor Ben Reichert, who teaches the production, business, design and serious games classes to undergrad and graduate students on campus and online.

"Even games developed during 48-hour game jams can be quickly balanced and massaged for a mobile marketplace. Getting games on the marketplace often and early helps students better understand the finer points of development and answer questions on sustainability like viability of concept, market penetration, monetization strategies and marketing basics."

There's never been a better time to carve your niche in app development through UAT's Game Studies, Advancing Computer Science or Digital Media programs.

Visit UAT's Wall of App Fame to view many of these and other professionally published UAT student and graduate work.



Info
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www.uat.edu

Student

VISIT

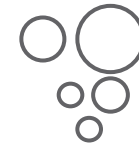
JUNE 27, 2015
JULY 31, 2015
OCTOBER 24, 2015

\$1,000
DISCOVERY
SCHOLARSHIP**

This is your opportunity to meet UAT staff, faculty and students who can answer all your questions about admissions, the classroom experience, options for scholarships and financial aid, and our unique and innovative degree programs. Best of all you can experience dorm life first—and hangout with current UAT students by spending the night in UAT's dorm, Founders Hall.*

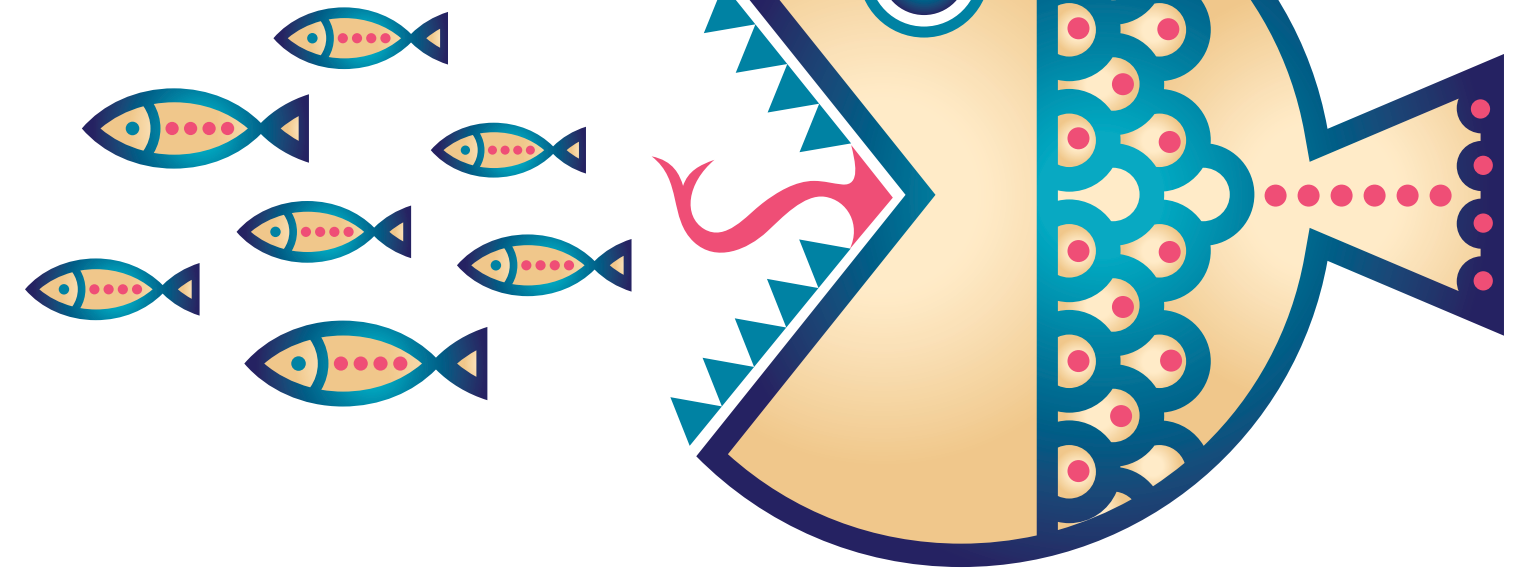


*If under 18, you must have your parent's permission to join us for the overnight experience. Download the Parental Permission form at DiscoverUAT.com, fill it out and fax a signed copy back to us at: 602-383-8222, or email a scanned copy to admissions@uat.edu. The overnight experience is for prospective students only and is limited to the first 50 participants. **This scholarship entitles you to a \$1,000 credit against your first semester's tuition at UAT (applies only to non-Arizona residents; one-time \$1,000 credit per student—student must be present to receive credit).



Sink In Your Teeth To Go Big

Bitfish



It's a fishy world where you eat or you'll be eaten. That's according to the new, free game swimming in the big ocean of successful entertainment apps – Bitfish, developed by David Townsend, Game Programming major and 2014 UAT graduate.

Enter the colorful ocean of BitFish, where your goal is to eat everything that you can wrap your mouth around while avoiding anything bigger than you. The simple and fun controls will have you gliding and dashing through the water pulling off amazing feats and fishy maneuvers.

But you're not the only fish with some cool moves. The other fish bring their own unique style to the party and it's up to you to be on the lookout before you end up in the belly of a bigger fish. Classic, arcade-style gameplay will test your abilities and keep you coming back for more!

BitFish Free Features:

- > Fun art style with groovy retro-inspired music!
- > Intuitive controls for simple and addictive gameplay!
- > NO in-app purchases! You get the full experience!
- > NO third-party advertisements or banners!

This published game app is getting rave reviews, and David credits UAT for all the support he received throughout his education that helped him launch his career in app development.

He writes to UAT, "Thanks again for everything you did during my stay at UAT. You left a lasting impression on me, for sure."

Dive into BitFish today, located on UAT's Wall of App Fame, LonelyRoadGames.com, and in the Google Play store.

GO
GET
SOME

www.uat.edu/wall-of-app-fame-play.google.com



A P33K
INSIDE
THE

G33KOSYSTEM

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.



Game Room



Microsoft Surface

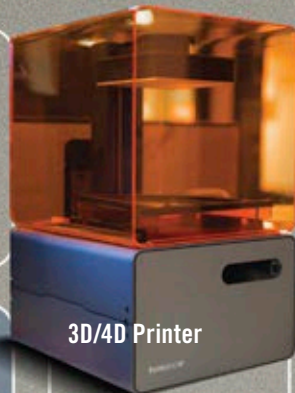
Innovative Tools
The UAT Technology team is investing heavily in cloud services so students can access software from anywhere in the world.



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

EMOTIV Headset

3D/4D Printers
Our new labs and studios contain the best of emerging technologies that empower students to invent and innovate in exciting new ways.



3D/4D Printer

World Class 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 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. Additional, specialty workstations are deployed for specific uses. Above you can see the Emotiv Headset; to the right, one of the 3D/4D printers that copies and builds multi-dimensional models.

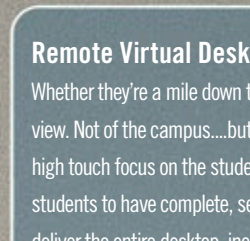


Makers Lab

Oculus VR
UAT is among the first technology colleges with an early prototype of the Oculus Rift VR headset, taking game development to a new level.



Oculus VR



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.

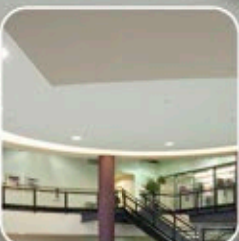
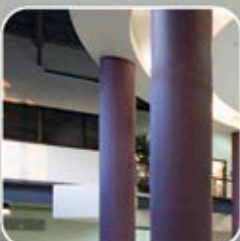
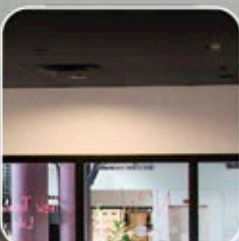
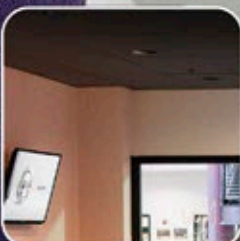
With rich media capabilities, VMware View provides UAT students the freedom to connect with a virtual desktop from a wide range of devices such as laptops, desktops and mobile devices. There is no lag during access, because this virtual technology is equipped with its own security on an independent software 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.



MakerBot Replicator



Green Screen Room



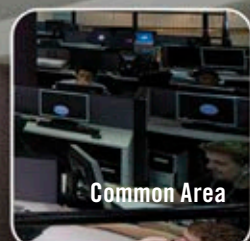
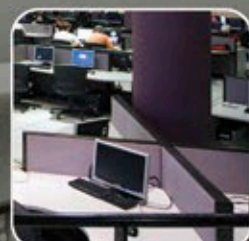
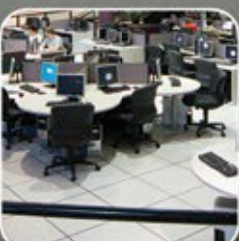
Data Heaven
Our campus system's technology capabilities are built on enterprise server architecture. The datacenter contains more than 100 servers (physical and virtual) dedicated to production and student use.



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



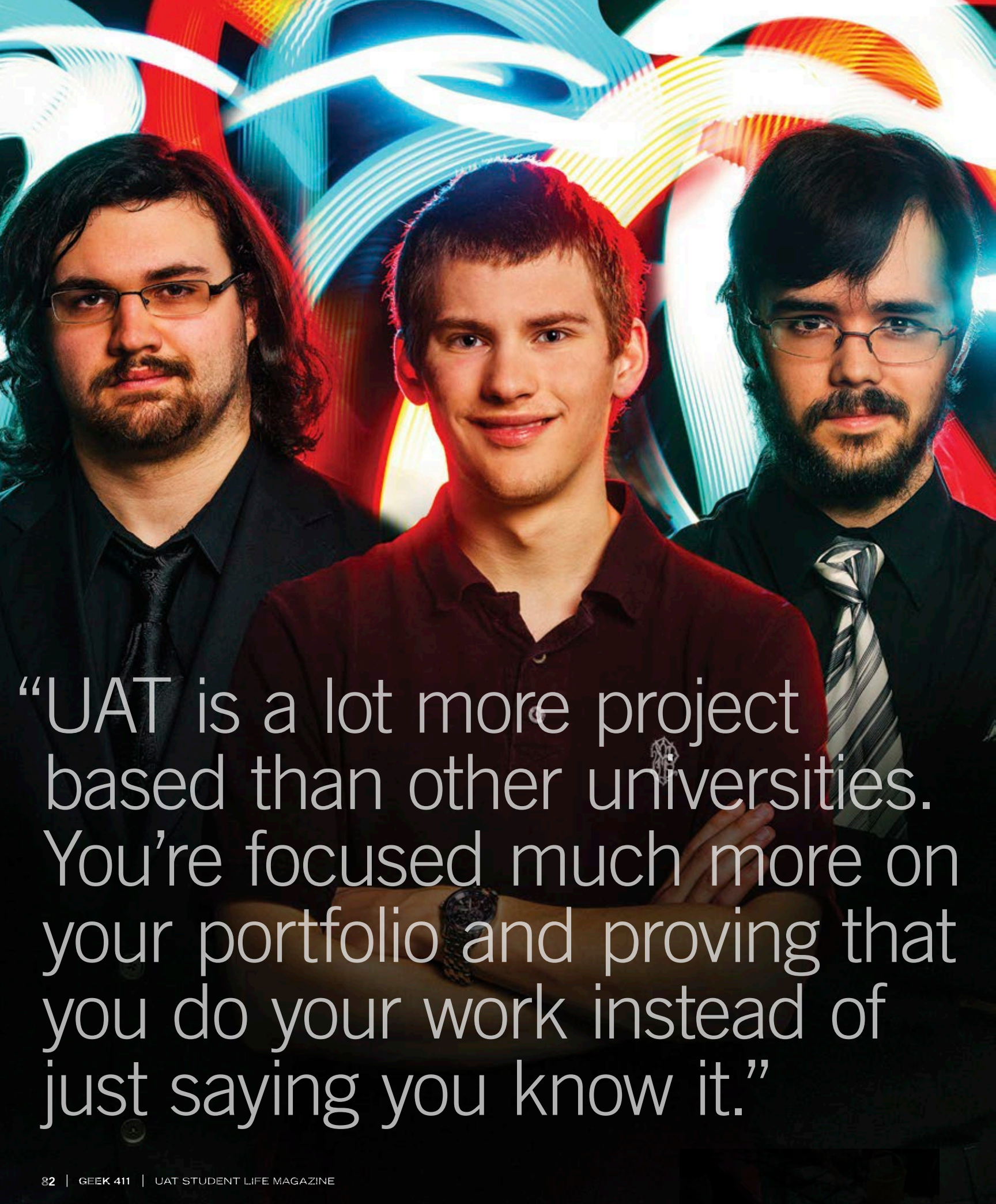
New Technologies Lab
Open 24/7, the lab just went online in 2015 as another innovative space to create with advancing technology.



Common Area



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



“UAT is a lot more project based than other universities. You’re focused much more on your portfolio and proving that you do your work instead of just saying you know it.”

Student Innovation Projects at UAT are designed to spark new ideas, create multi-disciplinary teams and bring innovation to life. Sometimes, the very best of concepts in technology and business begin as ideas in college that morph into innovations beyond the scope of where they begin, well into a graduate’s career.

Take Project Cast for example. Gaming ease for those with limited mobility is the focus of the Student Innovation Project of Game Design major Eric Price and Game Design major Dylan Gaither.

The idea for Project Cast was something Eric had wanted to explore even before he arrived at UAT. While the project was not completed before graduation, his idea for Project Cast shows great promise -- to provide a more immersive gaming experience for players with decreased motor functionality, enabling them to enjoy motion controls with the same degree of finesse as anyone else.

Project Cast is the first project demonstrating the potential to allow full custom controls to be tailored to every individual. Players could create their own inputs using the recording power of the Kinect -- utilizing an existing piece of technology that could be used in a way never done before. If the player’s mobility changed and suddenly was unable to properly interact in a way that is already integrated with the Kinect, this could easily be changed to allow them to continue playing. This technology would be applicable to those playing games or simply interacting with the Xbox, such as navigating or searching.

“I first got the idea from watching Fable: The Journey’s E3 presentation,” explains Eric, who hails from Dillon, South Carolina. “I thought the idea of casting spells with the Kinect was really cool, but I knew that a casual player would never be able to remember all the complex motions that were being showed on stage. Their idea spiraled from there, and even influenced the name.”

The technology behind their Student Innovation Project concept involves: allowing players to generate custom user inputs, using the power of the Kinect, then mapping those to different outputs, generating a unique level of immersion for each player assigning custom inputs to desired outputs by creating a recording process to integrate inputs into the system while Project Cast hasn’t left the conceptual stage, Eric believes the resources at UAT helped him explore his idea in greater depth and its focus on projects has been beneficial.

“Just the experience of exploring an idea and developing a concept is valuable to students in their careers, because the out-of-the-box way of thinking and how they approach a project can benefit them in their careers,” explains Dave Bolman, UAT Provost.

The Sparks of Innovation



TEAM

- Eric Price** (Game Art and Animation, Game Design)
- Dylan Gaither** (Game Programming)
- Robert Flad** (Game Design)
- Trevor Stevens** (Game Design, Game Programming)



Dr. Dave Bolman
UAT Provost

STUDENT INNOVATION PROJECTS

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THE ACADEMY

The Academy is a 2D/3D artists' community which provides interpersonal networking, assistance with skill-building and collaboration between members. Current prospected program teachings include but are not limited to: Traditional Art, Modeling, Texturing, Rigging & Animation (Maya), Modeling (Max), Texturing (Mudbox), Zbrush, Photoshop, Illustrator, xNormal, nDo2, dDo.

ACAPELLA

The Acapella Club's purpose is to introduce fine arts at UAT through music. The club will provide a place for those who love to sing, bond, entertain and have fun.

ANIMATION CLUB

The Animation Club was developed for students who are interested in 2D and 3D animation.

ANIME & MANGA CLUB

The Anime & Manga Club's purpose is to educate themselves and others in Japanese entertainment and media.

ACADEMIC PARANORMAL SOCIETY

APS is dedicated to illuminating the truth to what lies in the dark. From ghosts to ghouls, we take an academic approach to investigation and discovery. Nothing is certain, everything is to be investigated.

GLEE CLUB

The Glee Club brings music to the world of technology.

JAPANESE CLUB

The Japanese Club is here for those who want to discover and learn about the Japanese language and culture through translation, education videos and oral discussion.

KINECT DEVELOPMENT CLUB

The Kinect Development Club wants to develop new methods of using the hardware and software of the kinect, in addition to developing games that utilize these new methods.

LEAGUE OF LEGENDS

The League of Legends Club invites players of any skill level, whether you're here just for fun or want to fight some serious competition. The party never stops!

LET'S PLAY

Let's Play Club was developed for students who like to play and discuss games. They host games, tournaments and broadcast them whenever the action happens.

TRADING CARD GAME CLUB

The Trading Card Game Club plays a variety of trading card games with an emphasis on Magic: The Gathering. The group offers both casual and tournament play.

NERF WARZ

The Nerf Warz Club invites all students passionate about NERF to join the competitive fun!

STARCRAFT CLUB

The Starcraft Club makes mods in the galaxy editor while also creating educational YouTube clips about the editor. They are maintaining a relationship between UAT and Blizzard Entertainment.

VISUAL NOVEL CLUB

The Visual Novel Club wants to research, analyze and create games in the visual novel genre.

[BUFFER] OVERFLOW CLUB

The [Buffer] Overflow Club focuses on a number of Network Security and Application Security related event topics. Those within the club have researched and reverse engineered Microsoft Vulnerabilities, the building of a Beowulf Super Computing Cluster for password cracking, and Red Teaming for the UAT Collegiate Cyber Defense Competition team.

UAT Academic Programs and Majors

UAT offers undergraduate and graduate degrees in more than 20 areas of concentration.

ADVANCING BUSINESS TECHNOLOGIES

- > Business Technology
- > Technology Leadership
- > Technology Studies

CYBER SECURITY

- > Information Assurance
- > Network Security
- > Network Engineering
- > Technology Forensics

DIGITAL ARTS

- > Digital Media
- > Digital Video
- > Virtual Modeling and Design
- > Web Design

GAME STUDIES

- > Game Art and Animation
- > Game Design
- > Game Production and Management
- > Game Programming
- > Serious Game and Simulation

HARDWARE CREATION

- > Digital Maker and Fabrication
- > Emerging Technologies
- > Human-Computer Interaction
- > Robotics and Embedded Systems

PROGRAMMING

- > Advancing Computer Science
- > Artificial Life Programming
- > Enterprise Software Development
- > Open Source Technologies

More online at www.uat.edu/majors

FIND what's OUT next

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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Tech Respect

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Robotics and Embedded Systems
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