geek 411

The University of Advancing Technology Student Life Magazine

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A NEW SPIN ON 3D

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FREE 3D GLASSES INSIDE
CHECK OUT THE 3D CONTENT

VIEW 3D

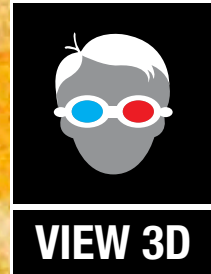*Illustration Courtesy of Meats Meier*

ALSO IN THIS ISSUE

WHEREVER YOU SEE THIS ICON, SLAP ON YOUR 3D GLASSES AND ENJOY THE EXTRA DIMENSION.

VIEW 3D

look for these microsoft tags

THROUGHOUT THIS ISSUE OF GEEK 411 AND TAG THEM TO GET MORE OF THE STORY OR BONUS CONTENT.

SNAP IT

Get the free app for your phone at http://gettag.mobi

what is mobile tagging?

IT'S INSTANT INFORMATION & ENTERTAINMENT. It's technology that has the potential to turn nearly everything in the world into a three-dimensional hyperlink. That's right, physical objects can now be interactive in a whole new and less personal way — by pointing your phone at a storefront or a tee shirt or a sign, you can get instant access to information and entertainment online. The game of "tag, you're it" is likely as old as humanity, which is how you techno-geeks out there might feel about Microsoft Tags — the little colorful square grids you see throughout this issue of Geek 411.

how do i get started?

step 1

Go online with your mobile phone to **http://gettag.mobi**
Or go to **www.microsoft.com/tag/content/download/**

step 2

Look for Microsoft Tags in this issue of Geek 411.
Open the Tag App on your phone and point the camera at the Tag.

step 3

Be amazed by the instant access to more content online and tell all your friends about it!

where else will i see it?

Mobile tagging is already being used in a number of interactive communication applications in the USA:

- Real Estate - Link signs and flyers to market real estate
- Movies - Link ads and posters to movie trailers and show times
- Advertising - Link print advertising to an online campaign
- GPS - Link web content to download directions
- Personal - Link to your profile, blog, site, or contact info
- Music - Link music lovers to the latest releases

T.O.C. ◎ ◉ ◎

VIEW 3D

AVATAR

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FEATURE STORIES

THE INVASION HAS BEGUN

ROBOTICS ARE TAKING OVER.

> UAT's Robotics and Embedded Systems degree takes you from software improvement through production and solution development.

> This degree program and the culture of innovation at UAT offer a comprehensive understanding of embedded sequential control – the application of Robotics and Automation utilized within operational systems.

UAT's Robotics program allows a deep foundational understanding to expand upon emerging areas of our future.

Bachelor of Science >
Robotics and Embedded Systems
Artificial Life Programming
Open Source Technologies

Master of Science >
Emerging Technologies

⚠ **CLUSTERGEEK WITH CAUTION**

IT'S ALL ABOUT THE EMBEDDED SYSTEMS!
See why> uat.edu/robotics

University of Advancing Technology
UAT
Learn. Experience. Innovate.

GEEK 411 AD

JAMES CAMERON FILMING AVATAR

VIEW 3D

YOU ARE ABOUT TO ENTER THE NEXT DIMENSION

FOUNDER'S HALL 3D THEATER ROOM

TV, GAMING AND GUIs IN THE NEXT DIMENSION

TELEVISION PICTURES LITERALLY IN YOUR LIVING ROOM

After several false starts beginning in the 1950s, 3D is about to become a mainstream reality in the forms of television, computer graphical user interfaces (GUI) and video gaming. It's clear we are also seeing a very significant increase in 3D movies in theaters – Disney has *Toy Story 3* and *Alice in Wonderland* in the final stages of 3D production and James (*Titanic*) Cameron's long-awaited 3D epic, *Avatar*, is now in theaters. Ubisoft also has a companion *Avatar* game, set for release in 2D and 3D versions

3D imaging dates back to the late 1830s, around the same time as the birth of photography. Back in the day your great grandparents had a "stereopticon," a viewer which melded two images to produce a 3D effect. In 1922, the first 3D movie, *The Power of Love*, was presented to the public in theaters. The 1950s brought us such 3D cinema classics as *Bwana Devil* and *House of Wax*, which used garish effects.

The British Sky Broadcasting company, better known as Sky UK, recently announced they will be launching a 3D broadcast channel in 2010. Viewers will need a 3D-ready television and a Sky+HD DVR box. Sky UK has plans to broadcast the 2012 Olympics in 3D. Panasonic announced that they will have 3D television sets on sale in 2010 as well. Sony recently announced that up to half of its HDTVs will be 3D-capable by 2012.

At a recent demo of Panasonic's prototype 3D TV, it displayed a picture more lifelike and vivid than anything previously available. One observer said,

"It was more like looking out a window at something than watching TV."

And there's a big change from the overdone 3D gimmicks that characterized the genre in the past. Today's 3D content is more subtle, an immersive experience rather than freaky visual effects. And yes, you do need to wear special glasses. Today's 3D top-of-the-line glasses are packed with sophisticated electronics which receive a signal from the television set that shutter the left and right lenses on and off rapidly to show each eye a slightly different image which – because of human binocular disparity (meaning each eye sees a slightly different image of whatever you are focusing on) – produces the perception of 3D.

As is always the case in the highly competitive world of consumer electronics (remember HD DVD vs. Blu-ray?), several methods for producing 3D effects are available and the market is trying to decide on a single standard for 3D. Manufacturers and content creators are hoping that the battle for a 3D standard will be short and decisive, because it's an expensive fight to wage. The system Panasonic uses, which is called "Full HD 3D," involves shooting scenes with a special camera that is actually two cameras in one with lenses spaced the same distance apart as the irises of our eyes. The two discrete, slightly different images are flickered to our eyes by the glasses, creating the 3D effect. Other systems for 3D use a single image split in half and flickered to each eye. Panasonic believes that their system of 3D reproduction will emerge victorious because, according to Robert Perry, executive vice president,

"It is the only one acceptable to the movie and TV studios."

Each lens in the special 3D glasses can be turned off independently, and the glasses are synced via cable or wireless; when your monitor displays the image meant for the right eye, the lens for the left eye is shut off, and vice versa. This shuttling back and forth happens very rapidly – around 60 times per second so you get a flicker-free 3D image on your monitor.

REAL 3D COMING TO GAMES AS WELL

Recently, Sony demonstrated a 3D gaming set-up at the Berlin IFA consumer electronics show using a PS3 version of the racing game *WipeOut* and a prototype Sony Bravia LCD display with 3D capabilities (due on the market in 2010). Sony also plans to build the technology into Blu-ray players and future versions of the PS3 so that gamers can enjoy 3D gaming action for any standard 200Hz HD display – although Sony backed off from saying that the firmware will make all games 3D functional. The British game developer Blitz is now also promoting its own 3D engine in the industry, so 3D is now topic number one in gaming as it has been for several years in the movie industry.

So, what does all this mean for gamers? Previous forays into virtual reality in gaming have been hampered by hardware and programming that only provide the illusion of depth of field. But with improving technology, explosive action games such as *Gears of War* and *Call of Duty* would be tremendously enhanced with 3D. Again, the key is for 3D to provide an immersive experience and not just add the cheap eye candy of a few special effects to games. The Canadian-based game company Kokoromi is already working on the use of various 3D technologies as they explore new design possibilities. Their website – **www.kokoromi. org/gamma3d/** – displays some of this work if you want a preview of the next level of 3D gaming.

GUIs GOING 3D

Microsoft, Apple and Linux are all hard at work on developing 3D graphical user interfaces for their operating systems. Novell has also produced XGL for Linux, which provides state-of-the-art 3D accelerated rendering and features to X Windows via OpenGL. In tests with video cards which are sophisticated enough to handle 3D, XGL produced surprisingly good results. As perhaps a first step in the direction of 3D GUIs, Acer Inc. has announced they will soon begin to market a laptop with capability to display 3D movies; you will also need special glasses to utilize this feature.

One of the first things you will notice with a 3D GUI is the elastic windows which warp dynamically when you move them. One reviewer even liked

"the beautiful way that menus pop out from their homes and come to a gentle, bouncing stop."

The main thing you'll notice is that when you switch desktops, each desktop is rendered on a face of a cube, so you just spin the cube to find the desktop you want.

At UAT, we've already integrated a variety of 3D technologies into many of our academic programs such as Artificial Life Programming, Digital Video, Game Programming, Virtual Modeling and Design and more so that our students continue to stay on the leading edge of advancing technology as they prepare themselves to be innovators of the future.

Ryan Andrews, sophomore in Digital Animation, says, "I am extremely interested in the latest developments in 3D. I plan to work in special effects on movies when I graduate, and this is the reason I'm at UAT."

UAT STUDENTS CHECKING OUT NEW NVIDIA 3D GLASSES AND VIDEO CARDS ON CAMPUS

Dude, that is totally three dimensions!
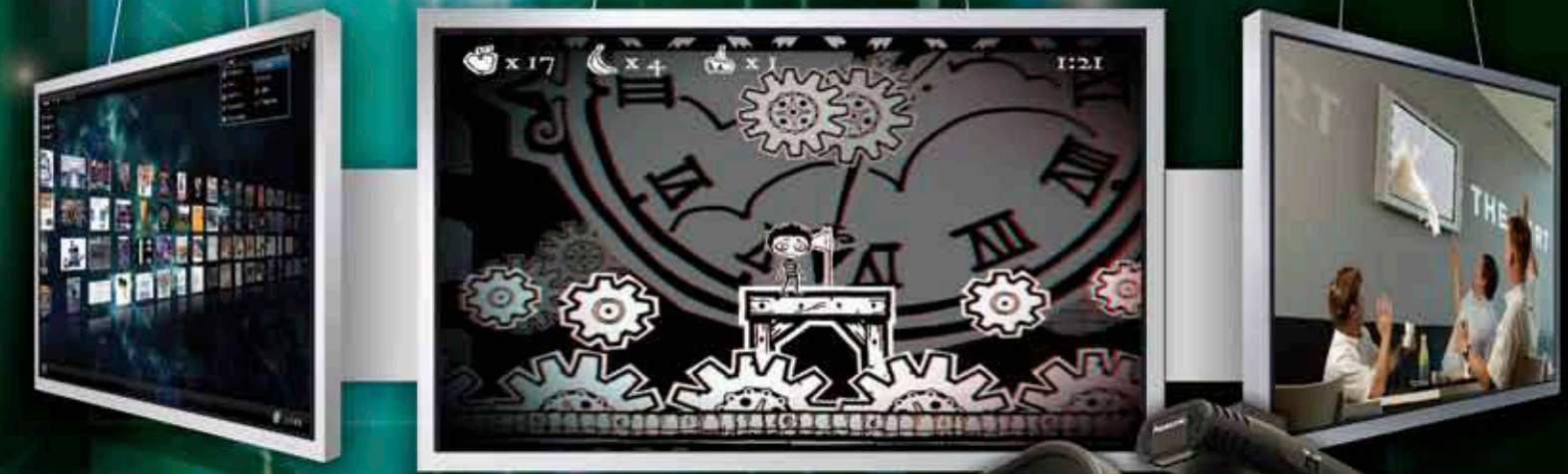
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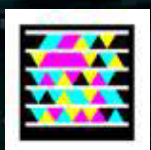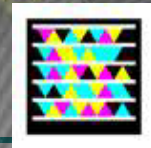
EVENTS

TECHNO FORENSICS AND DIGITAL INVESTIGATIONS CONFERENCE

www.technosecurity.com
Myrtle Beach, SC
June 6 - 9, 2010

The Techno Forensics & Digital Investigations Conference is founded on the principles of standardization in the field of digital evidence investigation. The conference will cover many of the general disciplines in the areas of digital evidence investigation to include some of the latest information on software and hardware solutions. **Accepted students log onto the intranet to find out more!**

TECHNOLOGY FORUM 2010
WELCOME TO TOMORROW

www.uat.edu/techforum
Tempe, AZ
November 2nd - 4th, 2010

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.

DEFCON

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

Log onto **uat.edu/defcon** to see more!

www.defcon.org
Las Vegas, NV
July 29 - August 1, 2010

FLY-IN G33K PROGRAM

www.uat.edu/flyingeek
Tempe, AZ

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

FULL ACCESS
NEXT STEPS ADMISSIONS

February	March	June	November
20th	13th	12th	6th
27th	20th	26th	13th

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

GDC S.F.

www.gdconf.com
March 9 - 13, 2010

The Game Developers Conference® is the world's largest professionals-only game industry event. Presented every spring in San Francisco, it is the essential forum for learning, inspiration and networking for the creators of computer, console, handheld, mobile and online games.

Photo courtesy of the Game Developers Conference

Accepted students log onto the intranet to schedule a trip with Team UAT! **www.gdconf.com**

Master the Ghosts in the Machines

> Master the art of programming with the perfect combination of advancing technology and application of new algorithmic structures, code metaphors and programming languages

> Start your journey to code our future with a deeper understanding of programming

> UAT's industry leading and advancing technology and methodology offers graduates the latest curriculum to move software development forward to the next big innovation

Gain comprehensive knowledge of advancing application development, database and object-oriented programming.

Bachelor of Science> Advancing Computer Science, Artificial Life Programming, Enterprise Software Development, Open Source Technologies, Robotics and Embedded Systems, Web and Social Media Technologies

Master of Science> Advancing Computer Science

⚠ **CLUSTERGEEK WITH CAUTION**

LEARN, EXPERIENCE AND INNOVATE WITH THE FOLLOWING DEGREES: Digital Media, Digital Video, Game Art and Animation, Game Design, Game Programming, Network Engineering, Network Security, Serious Game and Simulation, Technology Forensics, Virtual Modeling and Design

CONJURE YOUR CALLING
as an innovator in the realm of the machines with a coveted Advancing Computer Science degree from UAT> **uat.edu/acs**

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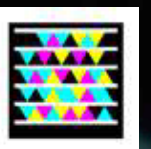
storyboarding

what is this . . .
a meeting or a movie?

Most of us are familiar with the term "storyboarding" as the process whereby moviemakers plan and layout a production from beginning to end by illustrating each scene in a separate frame so that everyone on the production team knows what to do and what comes next. It's like a flowchart of how the movie will look.

Storyboarding began when Leonardo da Vinci used drawings to illustrate his ideas. It was later revitalized by Walt Disney in 1929, during the development of his first feature animated cartoon, "Steamboat Willie." Disney had his artists pin all their drawings on a corkboard, organized by scene, so he could arrive in the office each morning and get a quick understanding of the progress of the project.

In the 1970's, Mike Vance, in charge of Idea and People Development for Walt Disney Productions, Disneyland and Walt Disney World, saw that motion picture storyboarding could be modified and used to facilitate group thinking. He called the derivation "Displayed Thinking." The techniques can save hours of meeting time, facilitate problem solving, expedite implementation of decisions and improve communication.

digitizing an old school technology

For the most part, storyboarding still entails an analog process of a series of separate drawings and ideas laid out on a board so they show the flow of a movie, project or meeting and can be discussed and re-arranged as necessary for clarity and efficiency in creating, problem solving or organization.

Phoenix-area businessman Jim Norman is one of the nation's leading experts in visual planning methods, and he is currently developing Enhanced StoryBoarding, based upon 30 years of research. Through UAT graduate student Greg Miranda, who put a class together based on the software development, Norman was able to offer several current UAT undergraduates internships in developing storyboarding software

to take the process to the next digital level. Under the guidance of UAT Management Professor Holly Rick and Miranda, the student team (below, utilizing software in a UAT conference room) recently completed the first phase of development and programming. The beta version of the software is now out for testing and evaluation by a panel of businesspeople and software engineers.

asp.net on sql, programmed in c#

For the development, the students used an ASP.NET front-end to be installed on a SQL server so it can be accessed on the Internet and programmed the back end with C#. The work process of the class was also a first for UAT — a course being taught by a grad student, who taught remotely from his home in California, clearly a case of modern technology being used to facilitate the development of even more advancing technology.

The student team was comprised of Evan Hjelmstad (President of UAT's Programming Club), Thomas Lachin, Christopher Peterson and Justin Schmitz. Greg Miranda gave the team a huge compliment when he told them that they had accomplished as much in three months as he was used to seeing after six months in the typical corporate environment. The team felt that Miranda, a 15-year industry veteran, provided just the right combination of direction and freedom that allowed them to not only accomplish their task, but to learn a lot about the business world in which the students may find themselves after graduation.

Professor Rick summed up feelings about the project by saying,

"It was a great opportunity. I was very happy to be part of these students receiving course credit as well as internship, and all of us who participated will receive publishing credit for our work. It was a win-win-win, all the way around."

find out how other uat students are using their imaginations to learn, experience and innovate at uat.edu/studentprojects

UAT DEVELOPMENT TEAM

STUDENTS

Evan Hjelmstad *Software Engineering - Senior*
Thomas Lachin *Advancing Computer Science - Junior*
Christopher Peterson *Game Programming - Senior*
Justin Schmitz *Software Engineering - Senior*

ALUMNI

Greg Miranda

FACULTY

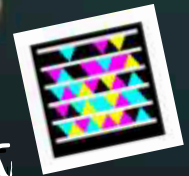Holly Rick *Professor of Executive Management*

did you know...

UAT students need an internship to graduate. Many find internships in their own field of study. Visit uat.edu/careerservices and read about how UAT can help you find an internship or job.

UAT buzz

Academicpalooza Rocks UAT

A new tradition was born this summer at UAT when four weeks of intellectual and technology challenges raged across campus and even online. Inspired by students, Provost Dave Bolman and Professors Gavin Regnaert and Ellen Wolterbeek organized Academicpalooza to engage students' thinking and creativity with a range of challenges to test skills in writing, art, hacking and more that resulted in prizes for the winners and tremendous fun for all who participated. The organizers, who also helped to spread the word to students, were thrilled with the participation, especially for a first-time event. "I thought it was a great start," said Professor Wolterbeek. "It was great to see all of the amazing things the students came up with, because we have brilliant students at UAT and they are so creative."

Two of the more popular challenges were to re-write one of Grimm's Fairy Tales and to hack a radio-controlled car. For his interpretation of a fairy tale, Zachary Robinson took home the first place prize of a netbook computer. This challenge was open to online students as well, and there are plans to make more challenges available to onliners for subsequent events. In the car hack, contestants were allowed to make both exterior and electrical mods and were judged on the basis of creativity, functioning and speed. Daniel Willinger was the winner of this challenge.

Provost Bolman summed up the future of the event when he said, "I want to look up five years from now and see that there is a history behind these competitions that people talk about and know about, and they become as much a part of the UAT culture as rubber ninja stars."

Microsoft Programming Challenge

For the first time, but surely not the last, UAT was the site of a programming competition sponsored by Microsoft that required contestants to solve a puzzle via code to read and validate a list of Tic-Tac-Toe game boards through data analysis. Twenty-one UAT students participated in the popular competition, which was organized by the UAT Programming Club. President of the club, student Evan Hjelmstad collaborated with the University's Industry and Career Services coordinators, along with game and programming faculty to bring the Microsoft Programming Challenge to campus. Hjelmstad said that the competition is a key recruiting tactic for Microsoft as well as a whole lot of fun for participants.

UAT students Thomas Lachin and Eliot Friedman took top honors in the C++ and C# categories. Competitors were given just three hours to complete their programming from the time they first looked at the original data. Lachin characterized the Challenge as "a process of blending coding and commenting frantically, while at the same time going through our mental checklists what was done and what was left to do."

Hjelmstad has hopes for the Programming Club to host monthly competitions for students, with support from Microsoft.

A new on-campus community service initiative this year is the Move-In Program

Current UAT students help incoming freshmen and their parents move all that stuff from home into the dorm rooms. The new program was a huge hit: it's a perfect bonding opportunity for the worldly current students to get to know the freshmen newbies. And parents who had visions of climbing stairs carrying loaded boxes gave the whole thing a hearty two thumbs up.

See where you might move into someday at www.uat.edu/residencelife

She'll miss her Son, but not the Black Widow T-shirt.

No, honest officer I'm moving into the dorm.

pie eating

UAT's version of homecoming is always packed with interesting things to do. Geek Week 2009

UAT students - among others - have a hand in making UAT's Geek Week a success.

In the past, the University has started off the week with the nerd, superhero and supervillain costume contests, where the best-dressed candidates were voted on. If you weren't voted "Most Likely to Take Over the World" in high school, it was the perfect chance to show what you were made of.

For students with a competitive streak, Geek Week features a pie-eating contest and geek trivia as well as food-themes — bobbing for apples in Mountain Dew and mysterious, disgusting edibles in UAT's Factors of Fear.

Visit uat.edu/events to learn more about campus activities.
Follow us on Twitter and stay in touch with campus happenings at twitter.com/uathappenings.

super hero

Another Top Institutional Accreditation for UAT

After a lengthy application and candidacy process, UAT recently received regional accreditation from the Higher Learning Commission of the North Central Association. Regional accreditation is considered the standard of accreditation for the vast majority of public universities.

Bill Peace, UAT Associate Dean, was the chief shepherd of the HCL accreditation process and was instrumental in UAT's previous accreditation process with the Accrediting Council for Independent Colleges and Schools. Bill's experience with UAT dates back to his student days in the 1990's. He was also instrumental in developing and launching UAT-Online.

"The HCL accreditation is a phenomenal accomplishment in a short period of time," says Peace. "I look at the accreditation as a big benefit for our students. We know we have an excellent institution, but others may not have recognized that previously. Regional accreditation also means that UAT's courses and degrees will be more favorably viewed when students transfer credits or apply to other regionally accredited college and universities."

Bill gives the ultimate credit for the successful HCL accreditation to,

"All the dedicated people at UAT and the top quality educational processes that we have in place."

www.ncahlc.org/   (312) 263-0456
UAT: 800-658-5744

associate dean, bill peace

Fall 2010

Spring 2011

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

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

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

Check us out online at www.uat.edu/nacactravel and see if we will be in your area. If you'd like UAT to visit your school ask your guidance counselor to contact a UAT high school Liaison Coordinator at 877-UAT-GEEK (877-828-4335).

* Fall 2010 NACAC Schedule

BIRMINGHAM	Sun., Sept. 20	1:00 pm – 4:00 pm	Birmingham-Jefferson Complex Birmingham, AL
BALTIMORE	Mon., Sept. 21	9:00 am – 12:00 pm 6:00 pm – 8:00 pm	Baltimore Convention Center Baltimore, MD
	Tues., Sept. 22	9:00 am – 12:00 pm	
GREATER PHOENIX	Sun., Sept. 27	12:00 pm – 3:30 pm	Phoenix Civic Plaza Phoenix, AZ
GREATER WASHINGTON DC	Tue., Sept. 29	9:00 am – 1:30 pm 6:00 pm – 8:00 pm	Washington Convention Center Washington, DC
MINNEAPOLIS	Wed., Sept. 30	9:00 am – 12:30 pm 4:30 pm – 8:00 pm	Minneapolis Convention Center Minneapolis, MN
	Thurs., Oct. 1	9:00 am – 12:30 pm	
BATON ROUGE	Thurs., Oct. 1	9:00 am – 12:00 pm 6:00 pm – 8:00 pm	Baton Rouge River Center Baton Rouge, LA
CHICAGO	Sat., Oct. 3	11:00 am – 3:00 pm	Navy Pier Chicago, IL
LONG ISLAND	Sun., Oct. 4	11:00 am – 4:00 pm	Nassau Veterans Memorial Coliseum Uniondale, NY
MILWAUKEE	Sun., Oct. 4	12:00 pm – 3:30 pm	Midwest Airlines Center Milwaukee, WI
CINCINNATI	Sun., Oct. 11	1:00 pm – 4:00 pm	Duke Energy Center Cincinnati, OH
ST. LOUIS	Sun., Oct. 18	12:00 pm – 3:00 pm	St. Louis University St. Louis, MO
SEATTLE	Sun., Oct. 18	12:00 pm – 4:00 pm	Washington State Convention & Trade Center Seattle, WA
	Mon., Oct. 19	9:00 am – 12:00 pm	
SPOKANE	Thurs., Oct. 22	9:00 am – 12:00 pm 6:00 pm – 8:00 pm	Spokane Convention Center Spokane, WA
JACKSONVILLE	Sat., Oct. 24	12:00 pm – 4:00 pm	Prime F. Osborn III Convention Center Jacksonville, FL
PORTLAND	Sun., Oct. 25	12:00 pm – 3:30 pm	Oregon Convention Center Portland, OR
	Mon., Oct. 26	9:00 am – 12:00 pm	
BOISE	Tue., Oct. 27	9:30 am – 2:30 pm 6:00 pm – 8:00 pm	Boise Centre on the Grove Boise, ID
FT. LAUDERDALE	Thurs., Nov. 5	5:00 pm – 8:30 pm	Ft. Lauderdale/Broward County Convention Center Ft. Lauderdale, FL
	Fri., Nov. 6	9:00 am – 1:00 pm	
ATLANTIC CITY	Thurs., Nov. 12	9:00 am – 12:00 pm 6:00 pm – 8:30 pm	Atlantic City Convention Center Atlantic City, NJ
PHILADELPHIA	Sun., Nov. 15	11:00 am – 3:00 pm	Pennsylvania Convention Center Philadelphia, PA
INDIANAPOLIS	Mon., Nov. 16	9:00 am – 12:00 pm 6:00 pm – 8:00 pm	Indiana Convention Center Indianapolis, IN

*Spring 2011 NACAC Schedule

ATLANTA	Sun., Jan. 24	time FPO	Georgia International Convention Center College Park, GA
PITTSBURGH	Thurs., Feb. 4 Fri., Feb. 5	time FPO time FPO	David L. Lawrence Convention Center Pittsburgh, PA
MIAMI	Sun., Feb. 21	time FPO	Sheraton Miami Mart Hotel Miami, FL
LOUISVILLE	Sat., Feb. 27	time FPO	Kentucky Int'l Convention Center Louisville, KY
TAMPA	Sun., Feb. 28	time FPO	Tampa Convention Center Tampa, FL
SPRINGFIELD	Sun., March 7 Mon., March 8	time FPO time FPO	Eastern States Exposition (The Big E) West Springfield, MA
ROCHESTER	Wed., March 17	time FPO	Rochester Riverside Convention Center Rochester, NY
CHARLOTTE	Sun., Mar. 21	time FPO	The Park (formerly the Charlotte Merchandise Mart) Charlotte, NC
SYRACUSE	Sun., March 21 Mon., March 22	time FPO time FPO	Onondaga County Convention Center, at Oncenter Syracuse, NY
BUFFALO	Tue., March 23 Wed., March 24	time FPO time FPO	Buffalo Niagara Convention Center Buffalo, NY
GREATER MEMPHIS	Wed., March 24	time FPO	Agricenter International Memphis, TN
HARTFORD	Thurs., April 8 Fri., April 9	time FPO time FPO	Connecticut Expo Center Hartford, CT
HOUSTON	Sun., Apr. 11	time FPO	George R. Brown Convention Center Houston, TX
AUSTIN	Tue., Apr. 13	time FPO	Austin Convention Center Austin, TX
WEST MICHIGAN	Tue., Apr. 13	time FPO	DeVos Place Grand Rapids, MI
MONTGOMERY COUNTY	Wed., Apr. 14 Thurs., April 15	time FPO time FPO	Montgomery County Agricultural Center Gaithersburg, MD
METRO DETROIT	Thurs., April 15	time FPO	Burton Manor Banquet and Conference Center Livonia, MI
SAN FRANCISCO	Sat., April 17	time FPO	Concourse Exhibition Center San Francisco, CA
SAN DIEGO	Tue., April 20	time FPO	San Diego Convention Center San Diego, CA
HONOLULU	Thurs., April 22	time FPO	Hawaii Convention Center Honolulu, HI
INLAND EMPIRE	Thurs., April 22	time FPO	National Orange Show Events Center San Bernardino, CA
PROVIDENCE	Sat., April 24	time FPO	Rhode Island Convention Center Providence, RI
NASHVILLE	Sun., April 25	time FPO	Nashville Convention Center Nashville, TN
NEW YORK	Sun., April 25	time FPO	Jacob K. Javits Convention Center New York, NY
ORANGE COUNTY	Sun., April 25	time FPO	Anaheim Convention Center Anaheim, CA
BOSTON	Tue., April 27 Wed., April 28	time FPO time FPO	World Trade Center Boston, MA
GREATER LOS ANGELES	Tue., April 27 Wed., April 28	time FPO time FPO	Pasadena Convention Center Pasadena, CA
NEW JERSEY	Wed., April 28 Thurs., April 29	time FPO time FPO	New Jersey Convention and Exposition Center Edison, NJ
VENTURA/ TRI-COUNTY	Thurs., April 29	time FPO	Seaside Park Ventura, CA
CLEVELAND	Sun., May 2	time FPO	Wolstein Center Cleveland, OH

* Note: These dates are from the official NACAC College Fair schedule and are tentative and subject to change. Please visit www.uat.edu/nacactravel for the latest schedule.
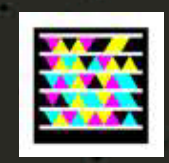
Making Strides Against Breast Cancer is the American Cancer Society's premier annual fund - and awareness-raising event. It's an opportunity for groups and individuals to join their community to celebrate breast cancer survivors and educate women about early detection and prevention. No less important is raising money to fund lifesaving research and to support programs that make a difference against breast cancer.

Making Strides events are noncompetitive walks ranging in distance from three to five miles. The events unite people of all ages with a common goal to fight breast cancer and save lives. Making Strides gives everyone the power to fight back and make a difference.

EACH STEP YOU TAKE IS PERSONAL. AND EACH STEP IS HELPING TO SAVE LIVES

-American Cancer Society: Making Strides Against Breast Cancer

This year, UAT students continued their annual tradition of joining The American Cancer Society in the Phoenix-area Making Strides event. UAT selected this event from all the breast cancer events available specifically because it benefits the American Cancer Society. "It's important," said student Zack Robinson, "because it can make a difference for our own mothers, grandmothers, sisters, even daughters."

UAT community members take part in Making Strides Against Breast Cancer.

UAT MAKING STRIDES AGAINST BREAST CANCER

Read about other ways Team UAT has reached out to the community at uat.edu/communityservice

IT'S THE DREAM.

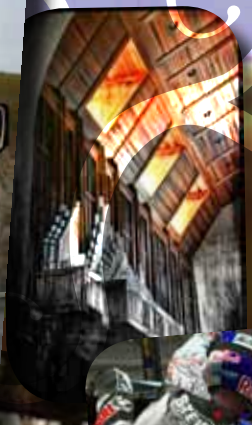**From** an unlikely start as a vocal performance major at the University of New Mexico, Holly Sheppard found her way, first to UAT, and then into a great job with one of the largest independent video game developers in the U.S. – Rainbow Studios, a subsidiary of 20-year gaming industry leader THQ.

Holly explains her long, strange trip this way: "I was enjoying what I was doing in college, but I always found myself being drawn to art schools. In fact, in high school I had considered art as a major prior to finally choosing vocal performance. Several friends at UNM were in the process of transferring to this 'incredible new school' they had found – UAT – and that caused me to begin thinking about art school once again. I even contacted a few art schools, but they didn't really seem interested in me or about working with transfer students in general."

"On the suggestion of a friend, I contacted UAT and it was completely different than my experience with the art schools. The people I spoke to at UAT were really responsive to me, and they seemed like they really cared about me getting the right education for my interests."

"I WAS ALSO IMPRESSED WITH THE FACT THAT UAT HAS RIGOROUS GENERAL EDUCATION REQUIREMENTS AND A TON OF INTERESTING ELECTIVES."

"Unlike other schools I considered, UAT offered the specialized education I wanted, but in the context of a traditional degree program – in other words, a real college education. Beyond that, UAT offered me the opportunity to choose a customized program and focus on areas where I had particular interests."

Holly had no previous experience in digital art when she arrived on campus, so she had to learn the necessary skill sets from the ground up, but flourished nonetheless. She was especially impressed with the effort and resources that UAT deploys to ensure that, when a student's degree is completed, they can find a job in the industry. "I not only learned about the area of my major, but I also learned how the industry works and how to best create win-win team situations in the real world after graduation," she said.

She took full advantage of the many activities and organizations that UAT offers, which also just happen to be excellent training grounds for the tools that would make her successful in the industry.

"I GATHERED A GREAT DEAL OF EXPERIENCE WORKING AS PART OF A TEAM."

"I was a modeler on the *COR Project* mod (see GEEK 411 Issue 1 **uat.edu/Geek411**), took part in some of the campus LAN parties, and I found UAT's annual Tech Forum, when industry leaders and insiders come on campus to speak to and work with students, to be particularly valuable in terms of visualizing and planning a real career path based on my skills and knowledge."

Holly is currently a terrain artist on the game, *MX* vs. *ATV Reflex,* which will come out in early 2010. According to her, "most of my work involves creating textures, bump mapping and lighting, and I work heavily in Photoshop and 3ds Max. In my time on *Deadly Creatures* I modeled, textured, lit full environments and dealt with certain gameplay elements that come from the environment. In a way, Rainbow Studios is like my experience at UAT. I'm given a lot of opportunity to expand and learn. I'm definitely enjoying my time in art production and still feel like there is more to learn, but eventually, I may consider a director role on a game."

Holly's advice to students who would like to make the most of a UAT education is,

"ALWAYS STRIVE TO BE ABOVE EXPECTATIONS."

"Talk to your teachers after class and let them know what you're striving to be. Take advantage of opportunities such as mods projects and Tech Forum. Try to take each school project to the portfolio level – you'll learn more along the way and when it comes time to put your portfolio and demo reel together, you won't be scrambling around to make new work."

NAME: Holly Sheppard

PROFESSION: Environment Artist – Rainbow Studios, Phoenix, AZ

ALUMNUS: UAT Class of 2008

MAJOR: Digital Animation and Production

HOMETOWN: Los Alamos, New Mexico

A DAY in the LIFE OF A DORM STUDENT

FOLLOWING FOUNDER'S HALL RESIDENT, **DEVON SZCZEPANEK** AS SHE GOES THROUGH HER DAY. →

10:45 AM — WAKE UP IN MY DORM ON CAMPUS...

10:48 AM — OFF TO CLASS WITHIN THREE MINUTES...

10:50 AM — QUICK CALL BEFORE CLASS.

12:00 PM

AH... CAFFEINE.

12:02 PM REFILL.

1:30 PM — FINISHING A PAPER FOR ENGLISH CLASS.

1:45 PM — MORE CAFFEINE...

SOCIALIZING IN THE COMMONS...

2:00 PM

3:00 PM — IN CLASS...

2:30 PM — WORKING ON A PROJECT FOR CLASS.

4:15 PM — CHECKING OUT A FAVORITE SITE.
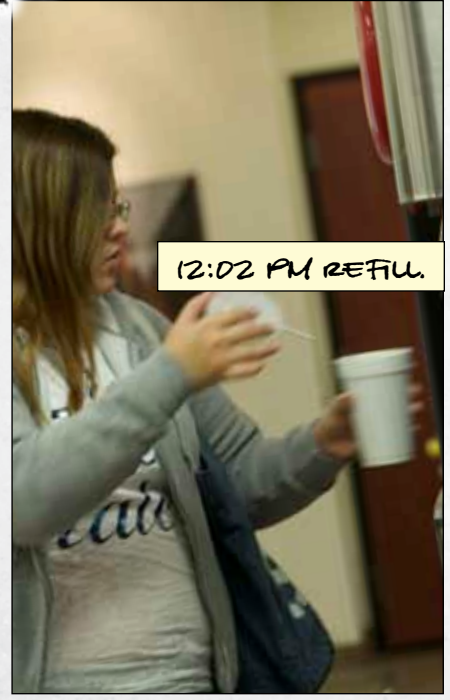
5:05 PM — GIRLS JUST WANT TO HAVE FUN.

5:25 PM — STUDYING A MOVIE...

TAG THIS TO SEE MORE ABOUT STUDENT LIFE — SNAP IT

TO LEARN MORE ABOUT WHAT GOES ON DURING A DAY IN THE LIFE OF A UAT STUDENT, LOG ONTO WWW.UAT.EDU/DAYINTHELIFE.

8:00 PM — YES, MY MOBILE IS BETTER THAN YOURS.

9:00 PM — HEADING BACK TO MY DORM...

10:00 PM — CRACKIN' THE BOOKS BEFORE BEDTIME.

11:30 PM — LIGHTS OUT...

SWEET DREAMS.

END.

GEEK CAVE

A look into an alpha-geek dorm room

As you might expect, Founder's Hall — UAT's student dorm — is massively geeked-out with all forms of advancing technology. And, as you also might guess, some students have seen this as a challenge to take their own space in the dorm completely over the top. Here's just one example of what UAT uber-geeks have been able to achieve. Next up – splitting an atom in the blender in the dorm's kitchen.

1. Code Geass
2. Pixar *Up*
3. *District 9* alien
4. Kirby
5. Pixar, *Kung Fu Panda*
6. *Star Wars: The Clone Wars* figure
7. Subwoofer
8. Nintendo Wii
9. PS3
10. 40" LCD
11. *Halo 3:0 DST*
12. Nintendo 64
13. Center speaker
14. Papasan cushion
15. Fender Squier Strat
16. Gas mask
17. *The Art of Kung Fu Panda*
18. Black Yoshi
19. Anime collection
20. *I-Ninja*
21. Katana
22. Character model
23. Arizona Iced Tea
24. Gaming rig
25. Crate amplifier
26. Distortion pedal
27. Moi dix Mois
28. *Final Fantasy* games
29. Gushers
30. Binary watch
31. Lightsabers
32. Laptop
33. Bamboo arrrangement
34. Dark Wolverine
35. Tempur-Pedic pillow
36. Private collection
37. Personal artwork
38. *Cloudy with a Chance of Meatballs*
39. Jak and Daxter
40. Snoopy
41. Domo Kun
42. Flatscreen TV

VIEW THIS
IMAGE UP CLOSE AND SEE IF YOU
CAN FIND NINJA AT
www.uat.edu/geekcave

THE LONGER WE WAIT FOR THE FUTURE, THE SHORTER IT WILL BE.

The Big IDEA!

Smart Meter

Wireless Charger

Image Courtesy of NASA Marshall Space Flight Center (NASA-MSFC)

Space Elevator

The Amazing Criswell

America's best-known psychic in the 50s and 60s was The Amazing Criswell — the white-haired gentleman right over there on the next page. You may have even seen him if you've ever caught the science fiction cult classic, *Plan 9 from Outer Space.* His predictions about the future didn't always pan out — that metal would assume the physical properties of rubber, creating havoc at amusement parks, and that the world would end on August 18, 1999, for example. But his closing line for his syndicated television show was, "We are all interested in the future, for that is where you and I will spend the rest of our lives." Finally, he got something 100% right.

So, settle back in your chair — unless you've already developed an anti-gravity sitting device — while we look into the crystal ball and take a peek at the technological future where we will spend the rest of our lives.

Let's start in the area that is of concern to everyone — energy. The Southern California Edison Company, the region's leading electric utility company, has just announced a program to install 5.3 million "Smart Meters" for its residential and small business customers. The meters will allow users to monitor their electricity usage online. Pacific Gas and Electric in Northern California is involved in a similar program. These programs should lead to a standardization of control chips, which will allow us to control thermostats and appliances remotely.

"DUDE, HAVE YOU SEEN MY POWER CORD?"

Staying with electricity, WiTricity Corporation (a spin-off from research conducted at MIT) announced that wireless electricity products using its technology will be available in 2011. The system is based on technology already used in transformers — for instance, that "brick" thing on your laptop charger/power cord. In transformers, power jumps across a tiny gap between two coils. WiTricity has increased that gap to as much as seven feet by having both coils resonate at the same frequency. So, you can now keep your laptop or other device powered or charging wirelessly — the same way you pick up a Wi-Fi internet signal.

"What planets, please?" In the future, it's likely we'll be able to get to outer space just by pressing the "Up" button. At the University of Cambridge, researchers are developing super-strong carbon fibers which could be used to build a space elevator. Launching a space vehicle from Earth is hugely expensive and requires tremendous energy. By utilizing a space elevator to get equipment and crews to the edge of space, where gravity is far weaker than on Earth, would make it much easier and less expensive to launch space ships for the rest of the trip.

UP
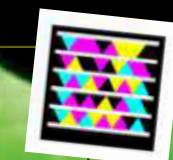
STOC

(stock ticker orbital comparison)

is an interactive data visualization program created by UAT student James Grant with help from instructor Stephen Cady. Professor Todd Spencer served as faculty advisor on the project. The project was programmed in Processing, an open source programming language, using the metaphor of a planetary system, which maps parameters of stocks in the S&P 500 to animated visual outputs. STOC had its world premiere at the SIGGRAPH 2009 Information Aesthetics Showcase in New Orleans, LA.

STOC solves a specific problem. Existing methods for displaying large amounts of stock market data do not easily allow head-to-head comparison between various stocks as the data is often presented in a fixed tabular format. Some previous solutions to this challenge implement a price-over-time graph, with the option of layering on additional stocks or market indices for comparison. STOC, however, seeks to allow immediate comparison of hundreds or thousands of stocks by mapping various stock-specific parameters to easily observable visual outputs. This visualization is particularly suited for comparisons between items, as one is able to immediately identify a variety of parameters in the group of stocks being compared.

The program uses mapping functions to adjust the raw data within ranges usable for visualization purposes. The data is mapped between inputs and outputs and comparative information is represented by visual outputs such as:

- Volume of trading = Planet orbital distance

- Comparison to S&P 500 = Planet speed

- Percent change from prior close = Planet color

- Market capitalization = Planet size

- P/E ratio = Planet atmosphere width and color

- Moving average = Planet opacity

- Dividend yield = Planet moon size

The program also produces an average of all these numbers to define the general performance of the S&P 500. This is represented by the large center circle, or "sun." After discussing how to best display the data, the team determined that the color of the sun would be an average of the change percentage, and th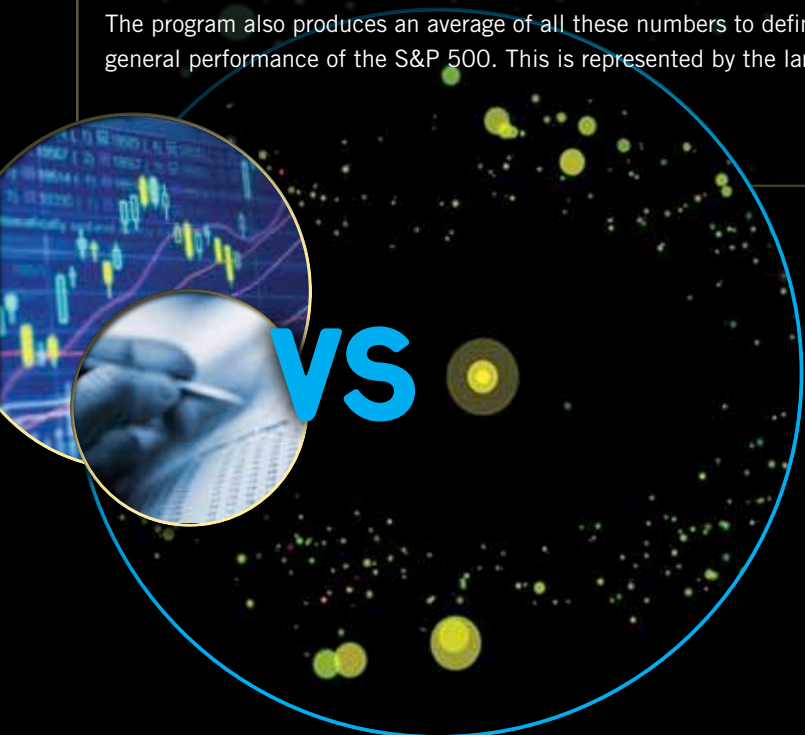e volume is a scaled visualization of the total volume of trading on the S&P. This was done to allow the viewer to tell at a quick glance some basic information about the market's performance and how much trading has occurred.

The entire system runs on the Internet and can be manipulated in several ways. The user is able to zoom in and out of a section to see more detail, or expand and contract each of the relative orbital radii, maintaining their relationship, but allowing the user to give more or less separation to them in order to better compare stocks. It also gives the user the ability to right click on a stock to display its name and press the space bar to get a print out of all the raw data that has been collected. The speed of the system can also be scaled via keyboard and can be paused at any time. An individual stock can be selected and highlighted by typing the company name.

Ideally, this application is something that could allow a person to simply glance at it to gauge the market's condition.

In this way, a person could always have an eye on the stock market without having to stare at line and bar graphs or wade through the endless columns of tiny print in the business section of a newspaper.

James reports that he has already had interest from outside parties in making STOC a commercial product. For future development, James plans on expanding the usability of the application with several additions:
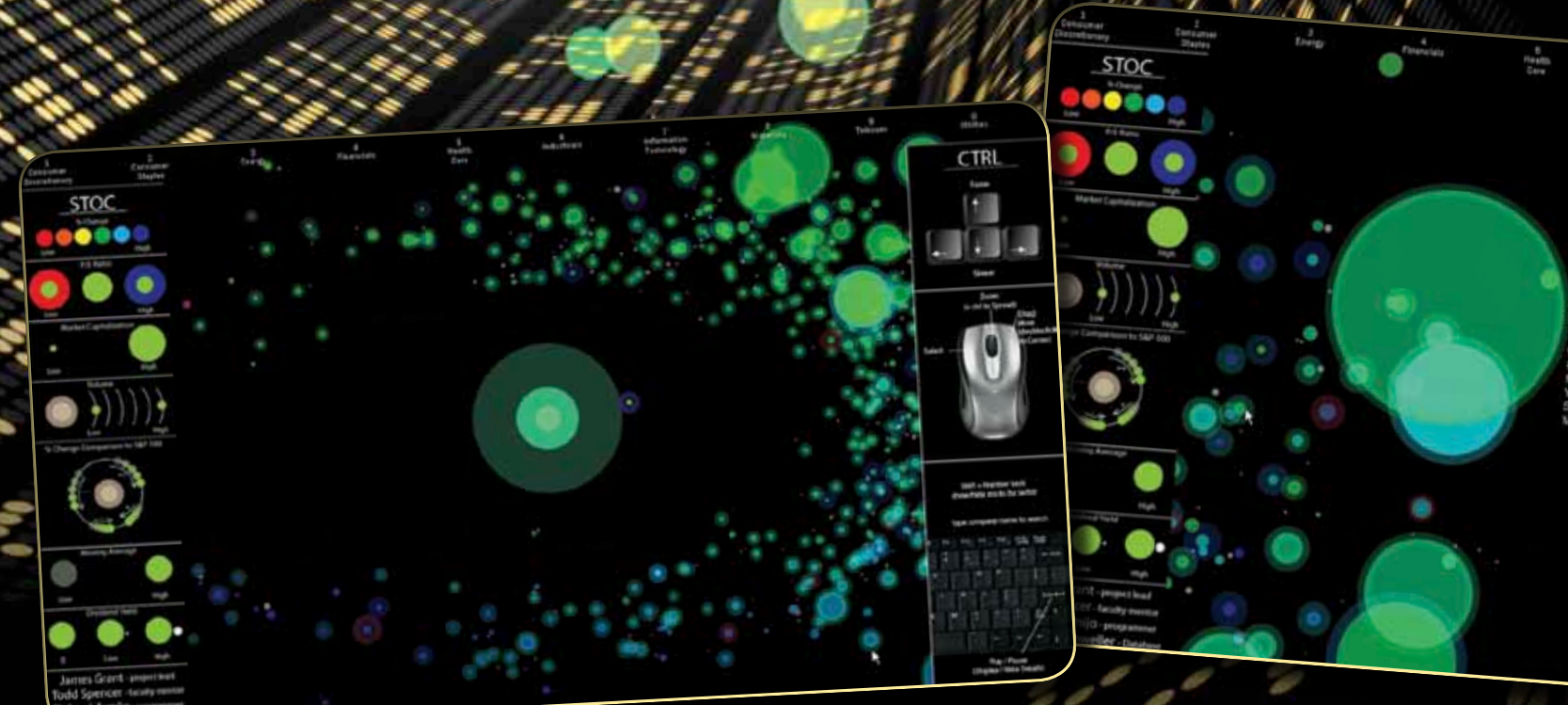
- iPhone and Android apps

- Web-viewable visualization and interaction

- Scan through daily archived closing data points

- Additional data sets visualized with same orbital metaphor

This area of technology is developing so fast that UAT has begun offering an undergraduate program in data visualization.
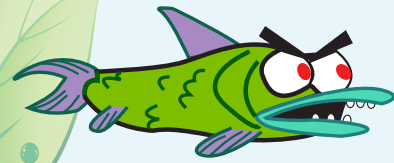
James Grant and Todd Spencer

LOOKING AT THE STOCK MARKET IN A WHOLE NEW WAY

aquaphobia

Rock out with your appendage out.

This Xbox 360™ game was developed for Microsoft's 2009 Dream Build Play Challenge by Team Aquaphobia, comprised of students and professors from the University of Advancing Technology (UAT) and originally organized by Jonathan Harbour, Associate Professor of Game Development. From May to August 2009, using XNA Game Studio 3.1, the team developed the entire game. The game — competing against nearly 5,000 games by developers from over 100 countries — qualified for the semi-finals in the Dream Build Play (DBP) Challenge and was also presented at this year's Game Developers Conference (GDC) in Austin, Texas. Dave Wessman, Associate Professor of Game Studies and a 17-year veteran of the game industry, led the team to GDC and was instrumental in the later stages of development when Professor Harbour's schedule became too hectic to allow him to continue.

details

Aquaphobia: Mutant Brain Sponge Madness is a colorful, fast-paced, 2D side-scrolling action platformer game about Gibby, a Caribbean brain sponge (a real species: *Geodia gibberosa*) that has been subjected to bizarre experiments by the deranged Dr. Jack Harbor. Although he isn't aware of it, Gibby lives in a science lab aquarium. As a result of the mad doctor's ministrations, Gibby has awakened from his slumber and discovered he can now move about his environment in quite extraordinary ways. Many exciting discoveries await him — who he is, what he is doing here and where he is going. You know, the big questions that every mutant brain sponge must answer.

The player controls Gibby through numerous levels and a variety of game modes. The core game mechanics combine an innovative use of biochemistry — and materials physics-based gameplay — with traditional platforming and action gameplay. As Gibby defeats certain enemies, he may absorb their DNA and acquire new abilities. As the game progresses, these abilities are needed to overcome new challenges. Levels are designed to allow more than one solution, however, and it is expected that players will discover exciting emergent gameplay possibilities.

RESEARCH PROJECT TITLE: Genetic Manipulation of Sessile Invertebrate Fauna to Create Cognition Enhancing Prefrontal Cortex Neuronal Responsiveness
PERIOD OF ANALYSIS: 31 April - 05 August, 2009
LOCATION: Ren's Reef National Marine Sanctuary (N 33.432222, W -111.931944)
PRINCIPAL INVESTIGATOR: Dr. Jack Harbor
INSTITUTIONS: University of Aquatic Technology and Aquaphobia Inc.

dr. harbor's research notes

"Ren's Reef National Marine Sanctuary may be a southwestern limit to several species of what are generally considered to be 'tropical' organisms, but it is the presence of *G. gibberosa* that offers the most exciting possibilities for a genuine breakthrough in cognition-enhancing prefrontal cortex neuronal responsiveness. Unfortunately, I may have to resort to unorthodox methods to pursue my theories. My so-called 'colleagues' — jealous and incompetent to a man — have conspired to sabotage my reputation in order to deny further funding."

challenges

Perhaps the biggest challenge to the team was having to develop a complete game in only four months. Plus, admittedly, the group didn't really get fully on track with their work during the initial weeks of the semester in which they had to complete the game. There was still no consensus on moving forward until practically half way through the allotted development period. This resulted in some too-fast, maybe-no-so-elegant coding, long "crash" meetings and a deadline day batch of bugs that some thought they wouldn't be able to resolve in time. But the team got through it, conquered their challenges and ended up with a great full-team performance that included mass work sessions in the Computer Commons that lasted all day.

Because of the time limitations, the team had to abandon a few concepts they had hoped to implement but ran out of time for — such as scaling, more background detailing and additional puzzle elements. The team felt they could accomplish their original goals when they got back to work on the game after the DBP Challenge and their GDC presentation.

successes

All Aquaphobia team members report that it was really gratifying to come together as a cohesive group and create a game in 60 days. Beyond that, submitting it to the DBP Challenge and presenting it to the GDC are sort of extreme icing on the cake.

As the team worked on the game, random students were recruited to try out the game. The enjoyment that students showed in playing the game — even though it was not a finished product — gave the team the motivation to press on with a difficult challenge. One member said, "There is nothing more gratifying than to see someone use and enjoy something that you have been a part of creating. The enthusiastic feedback was really important to our ability to complete the game."

the future

Now that the DBP Challenge and GDC are over, team members look forward to an opportunity to clean up and polish all the little things they had to hurry through development. The fact that they could possibly be doing the work to finish off the game under an Xbox Live contract adds even further to the excitement they anticipate in the future. Project manager, professor Jonathan Harbour, sums it up this way: "This was literally an 'outside project,' done by UAT students, so they got the internship credit they need toward their degrees. The students did an awesome job on very short notice and we explored a number of ideas initially, so they did an amazing job — and put in a lot of crazy hours — to get the first level done. And then, in the next three months, they were able to polish and develop the game further for submission to the DBP competition and GDC."

development team

The Aquaphobia team includes students and instructors:
RB MacDonald (Design)
Tim Michaud (Lead Programmer)
Jared Miller (Programmer)
Sean-Ryan Smith (Programmer)
Ron Conley (Art)
Prof. David Wessman (Creative Director)
Prof. Jonathan Harbour (Project Manager)
The team also gives special thanks to students Michael Viscio and Professor Todd Spencer for their assistance.

check out a video of how the game works at www.aquaphobiagame.com

rock out with your appendage out at www.aquaphobiagame.com

XBOX 360   XBOX LIVE

RB MacDonald   Michael Viscio   Jared Miller   David Wessman

Brian Bonfiglio, CTO

Brian Bonfiglio

CheckGateway Team
Paul Manley,
Developer
UAT Student 2001-2004

Jeffery Woodard,
Software Programmer
UAT Alum 2008

Brian Bonfiglio,
CTO
UAT Alum 1998

Shortly after Brian Bonfiglio, class of 1998, started working as a developer at CheckGateway, an electronic check processing company, he was called into the owner's office. Had he done something wrong? Were his responsibilities going to be changed? In fact, the real reason CheckGateway's owner wanted to speak with Brian was to offer him, along with another employee, the opportunity to buy the company!

Brian was singled out by his boss because of his in-depth knowledge of the technology systems the company relied on to operate on a daily basis.

"At the time I was the IT manager of this company and knew the most about the software and maintaining the network," he says. He gained this foundation in software and web development while a student at UAT. It's also where he began to build up extremely sound problem-solving skills, first as a student, then as an intern working for UAT's internal IT department during his last year of studies, and later as a full-time employee after he graduated.

The owner also saw in Brian a sharp decisionmaker who could analyze a given situation and make the right choices in the areas of advancing technology.

"The one skill I learned at UAT that helped me most when I got out in the real world was, I learned how to learn," Brian says. "They're big at UAT about the development of your technology and life skills, and learning to learn was part of their culture. It was also strongly emphasized when I went to work as an employee at UAT. Those skills got transferred to me in my early stages there."

Brian's first smart choice, along with his soon-to-be partner, John Kirchhefer, was to accept the offer. Ultimately, they not only purchased the company and innovated the industry with new technology applications, but through their diligence and energy, they even bought out their boss early.

CheckGateway is a technology-driven company that acts as the gateway between online merchants and financial institutions. Their internally developed applications provide online check clearing capabilities to clients including IBM, PetMeds, PC Universe and others. They achieve annual sales of approximately $5 million. As owner and Chief Technology Officer, Brian's role is to work with his IT team to keep things running smoothly and to create new and better technology solutions for business and financial transactions.

It's a high performance environment to say the least. "If our servers are down, we lose money with every minute we're down," Brian says.

DIGITAL ANIMATION MAJOR GETS THE BIG PICTURE

Originally from Battle Creek, Michigan, Brian relocated to the Phoenix metro area and joined UAT's Software Engineering program. In high school, he'd gotten passionate about computer aided design (CAD). Always ahead of the field, UAT had the only CAD degree program in the country at that time. But as often happens when students who are passionate about technology arrive at UAT, Brian saw a bigger picture of possibilities than he had previously realized were available to him.

Exploring UAT's advancing technology course offering, he eventually settled on majoring in Digital Animation Production, for which he earned a Bachelor of Arts. This was at the dawn of web 2.0. Little did Brian know at the time how much this choice would affect his ability to be at the forefront of the industry transition from websites that were really just online brochures to sites that functioned as dynamic business portals.

Because of UAT's Year Round Balanced Learning educational approach, Brian was exposed to a broad range of technology platforms and approaches. In addition, the University has an entire culture of "learning how to learn." The idea is pretty simple but incredibly powerful, according to Brian. "Because UAT teaches only the most advancing of technologies, they know that it's just a matter of time before what is cutting edge becomes old school. So UAT has

focused on teaching students how to think and apply the new technologies as they emerge, building on the base of knowledge gained in college to maintain your leadership in your chosen field."

"I learned a lot of software engineering in the Digital Animation and Production major such as Visual Basic, C++ and others," he says. "The combined training of software programming education, together with lots of design stuff in my major, helped me focus on web development in the early days of the Web, versus other types of development."

Working his way though his last year of studies at UAT, Brian also gained invaluable on-the-job experience. He was hired into the IT department, where he learned not only about being a systems administrator, but about himself.

"I really learned that it wasn't the animation production I enjoyed, but it was the technical IT, working with the combined power of hardware and software. That's how I got into programming and software development."

CAREER ON THE CUTTING EDGE.

Given the in-depth preparation he received, Brian's transition from student to IT professional was a smooth one. After completing his studies, he stayed on as an employee at UAT until 2001. He left for greater responsibilities and a higher salary at ACT in Scottsdale, AZ, a company that developed sales force automation tools. There he used his web developing skills to build their web-based Customer Relationship Management platform. From ACT, he continued to move into more challenging online application development for various freelance assignments until finally accepting a job offer at CheckGateway.

Ultimately, it was his experience at UAT that earned him a promotion at CheckGateway to become the IT Manager there. And it was because he was the IT Manager that he was offered the ownership opportunity. Now, as the boss himself, Brian continues to use the skills he gained at UAT to guide his company to greater success.

"What I learned has helped me make this company better. Specifically, learning how to learn helped me be more dynamic in some of the decisions we make in running the company. Because we're a software company, having an owner that understands these skills and technology, and most importantly, how to apply

and implement them as they are developed, helps us stay on the cutting edge."

Brian is such a believer in the education he received at UAT that he looks to UAT graduates first when his company needs to add someone to their team. "Since we've taken over the company, we've had at least four or five graduates we've employed here as well as partnered with. We find UAT students to be the most talented from the skill pool out here in Arizona. Because of the culture, students get to refine their thinking skills while they're at UAT. UAT hires have always been productive at our company."

But, it's also the kind of student UAT attracts that is important to Brian. Their passion, interest and involvement in technology didn't start with school. They are lifetime technology learners who are hardwired to excel in this challenging arena. In other words, they were techno geeks before UAT and, as students, that passion for technology became sharpened and channeled into deeper areas of expertise.

"When you get students from UAT, you get a person who hasn't only learned something in school but who's been doing this stuff since they were a kid. You get almost 10 or 15 years experience from them since they've been passionate since their childhood versus someone with little experience out of college."

Maya Master and Leading 3D Artist
Meats Meier

Original Mother Nature Art 2003

Centerpiece for SIGGRAPH 2008 Computer Animation Festival Awards

Siggraph New Orleans 2009 Festival

Evolution of the Animation Mother

Flip back to the front cover for a second. Check out the very cool, 3D "Mother Nature." Ever wonder what it takes to develop talent like that?

Cover of Zbrush 3 Instructional DVD

Personal Artwork For a Poster

Personal Artwork

Version of Maya 7 Cover Artwork

Personal Artwork

"When I first saw what 3D could do I saw it as the most incredible opportunity for me as an artist."

With the rapidly advancing pace of technology development today, you very seldom hear of a single person who has been instrumental in virtually every evolutionary breakthrough in their field. But there's always the exception to the rule. From video games to movies and music videos to GUIs, Meats Meier is one of the innovating leaders in the development of 3D graphics and animation.

He's always been an artist – from the picture of Superman he drew with crayons at age two (and still has, thanks to a Mom who saved everything) to his "real" start as an airbrush artist. From airbrushing, he moved on to become a 3D video gaming artist in the "dark ages" of 1993. So long ago that the Internet was still in its infancy. This was before many people even knew about 3D game rendering, Meats remembers. "At this point, 3D was still thought of as 'the next big thing in gaming.'" He was using a program called "Advanced Visualizer," which along with Alias Power Animator and Wavefront Software, was one of the precursors to Maya. Meats worked for six years at one of the early game development companies in the U.S., Beyond Games. Anybody remember Ultra Vortek for the Atari Jaguar console? Back when he created that art, Meats filmed the game's 3D characters in front of a green screen, cut them out and put them back together so they could do individual moves. He then animated them fighting each other in 3D. One advantage of being among the pioneers in his field is that Meats has had his website up since 1992, and the myriad of links that have developed over the years have made his site one of the top-ranking 3D animator sites on Google.

UAT Game Design Professor Mark Baldwin has characterized the field this way: "Before 3D graphics, the visual artist was typically concerned with background 2D scenes and the design of characters/pieces that would move across the screen. But 3D changed art drastically. Instead of creating 2D images that represented a 3D world like a painter might, the artist actually had to become a part-time architect, designing and painting 3D objects in a 3D world, much more like a sculptor than traditional artist."

The next game he worked on became one of the most widely produced games of the 90s. The Cap N Crunch Crunchlings adventure game was the first game on CD to be packed into cereal cartons and more than 7,000,000 CDs were pumped out. It was the most widely distributed game of 1994. Meats created the 3D art and models for all the characters in the game and animated them all as well. You may notice a pattern developing here – Meats much prefers to be actively involved in every phase of the development and production of his art. While so many computer artists end up being specialists in just one element of a production, he relishes being a generalist and doing it all.

"Instead of going out on the weekends I was learning 3D."

For the next six years he worked freelance in his home state of Utah. He won best animation at the Slam Dunk Festival in 2000 for one of his 3D animations. During this period he was using Maya and producing a lot of animations he posted online. His big breakthrough came in 2003 when he became one of the few artists to be named a Maya Master. This led to, as he casually mentions, "a barrage of job offers from places like Industrial Light and Magic." He eventually

MEATS MEIER

became a Technical Director/Compositor in an ILM spin-off called Orphanage. He chose Orphanage because they focused on hiring generalists, not specialists, to produce their work. He did everything from modeling to animating to the final composing of frames. As he says, "Every bit of 3D is extremely interesting and you get experience with the entire process being a generalist." In addition, he worked on Hellboy, Sky Captain and the World of Tomorrow, along with a variety of national TV commercials.

In 2006, he received an offer from the Gnomon School of Visual Effects and relocated to Los Angeles to work as a resident artist. He taught the first professional ZBrush class for those who wanted to learn a more artistic way to work in Maya. He also created the ZBrush training CD.

After a couple of years at Gnomon, Meats went back to freelancing and has worked for a number of bands (including Tool), other clients such as Levis, and has created more than 30 3D magazine covers this year alone.

What's next? "My main goal has always been virtual reality – all of what I have learned has combined to provide me the tools we need to lead the way in virtual reality. Virtual reality is my passion and my next step as an artist. It leads to the future and eventually, when the computer power can handle it, virtual reality will be bigger than any video game today. The next step is full immersion. People already get lost in games but once someone can step inside, it's a different story with the full artwork completely enveloping a person. It will be a whole new generation of art. There will be great opportunity for artists in the coming years when a person's movements can translate into a game similar to the Wii, but with 100% immersion. The goal is trying to learn all these different functions of video games and create an entire world people can participate in. My main goal is for someone to step into my artwork, then my world of art is a whole new level of interactivity for others.

"Each new programming and art technique I could learn was like a super power."

"In 5 years we'll see the beginnings of virtual reality. It's about computer power we can count on doubling every 18 months and when people are used to 3D in general we'll be fully into virtual reality in 10 years. The stereoscopic stuff is getting big, movies like Avatar and other high budget films are using it now. It's just a matter of time."

Avatar has drawn rave reviews and record-setting audiences across the country. But the only viewers who can truly appreciate what it took to bring this 3D world to the screen are the technology geeks who understand James Cameron's challenge to deliver an immersive virtual reality experience, not just gaudy "special effects." Cameron has said, "I spent more than 15 years developing the technology that not only allowed what is seen on the screen, but also allowed me to view the 'green screen and body suit' character shots during filming just as they would be seen in all their CGI glory in the final film. The software we developed actually added the CGI to live images as they were recorded." These breakthroughs will mean an even brighter future for Meats Meier and future video artists and technologists as they tame and discover this new frontier in entertainment.

Leading Theoretical Biologist to Receive da Vinci Medal

Theoretical biologist Dr. Lynn Margulis is the 2010 inductee of the Leonardo da Vinci Society for the Study of Thinking. Dr. Margulis, University Professor in the Department of Geosciences at the University of Massachusetts Amherst, is best known for her theory regarding the symbiotic origin of organelles, such as mitochondria, within cells. Although her endosymbiotic theory is generally accepted by scientists today, when she first published it in 1966, it was so revolutionary that it was initially rejected by mainstream biology and a sizable number of scientific journals.

Heralded as the modern Charles Darwin, Dr. Margulis has authored more than 130 scientific articles and 10 books. She is one of the leading proponents of the Gaia theory — the idea that living organisms on a planet will act together symbiotically to positively affect the nature of their environment in order to make the environment more suitable for life. She opposes competition-oriented views of evolution, stressing the importance of symbiotic or cooperative relationships between species.

Dr. Margulis will join the UAT community and Arizona leaders from government, business and education on campus June 16-18, 2010, to be inducted into the da Vinci Society and receive the Da Vinci medallion.

UAT created the Da Vinci Society to honor the world's leading thinkers. Dominic Pistillo, founder of the University of Advancing Technology has said, "At UAT we strive not only to provide an enriching educational environment, but to raise the bar with innovation, systems thinking and programming that will carry us through the 21st century. In that regard, we are honored to be able to present such a distinguished thinker as Dr. Lynn Margulis with the Da Vinci Medallion."

Find out who the past five honorees into the Leonardo da Vinci Society for the Study of Thinking are at www.davincithinking.org
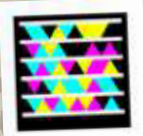
Supporting higher education in advancing technology to foster innovation

The most secure investment in a better future is also the most rewarding — an investment in education. Specifically, post-secondary education in advancing technology. The UAT Foundation is a philanthropic, not-for-profit grantmaking institution based in Tempe, Arizona. Established in 2006, the Foundation establishes grants in support of education and scholarship in advancing technology.

The Mission of the Foundation is to help create a better tomorrow by fostering better, more accessible education in the field of advancing technology. In our increasingly technology-driven society, we help support the students who will become tomorrow's leaders in the field, innovating the future.

How does the Foundation support education in advancing technology?

The UAT Foundation funds a variety of scholarships for students who are studying in any of the fields of advancing technology. From Game Design to Network Security, we provide the financial support that worthy students specializing in technology need to develop the skills and base of knowledge that will be required to master and manage the rapidly-evolving future. The Foundation serves to foster the intellectual development of these students.

Please join us … by supporting higher education in advancing technology through your generous donation. For more information, visit www.uatfoundation.org.

If you would like to invest in a better future through a tax-deductible donation, or by sponsoring a professorship or event, please email contributions@uatfoundation.org or call the UAT Foundation Donations Coordinator at (602) 383-8224.

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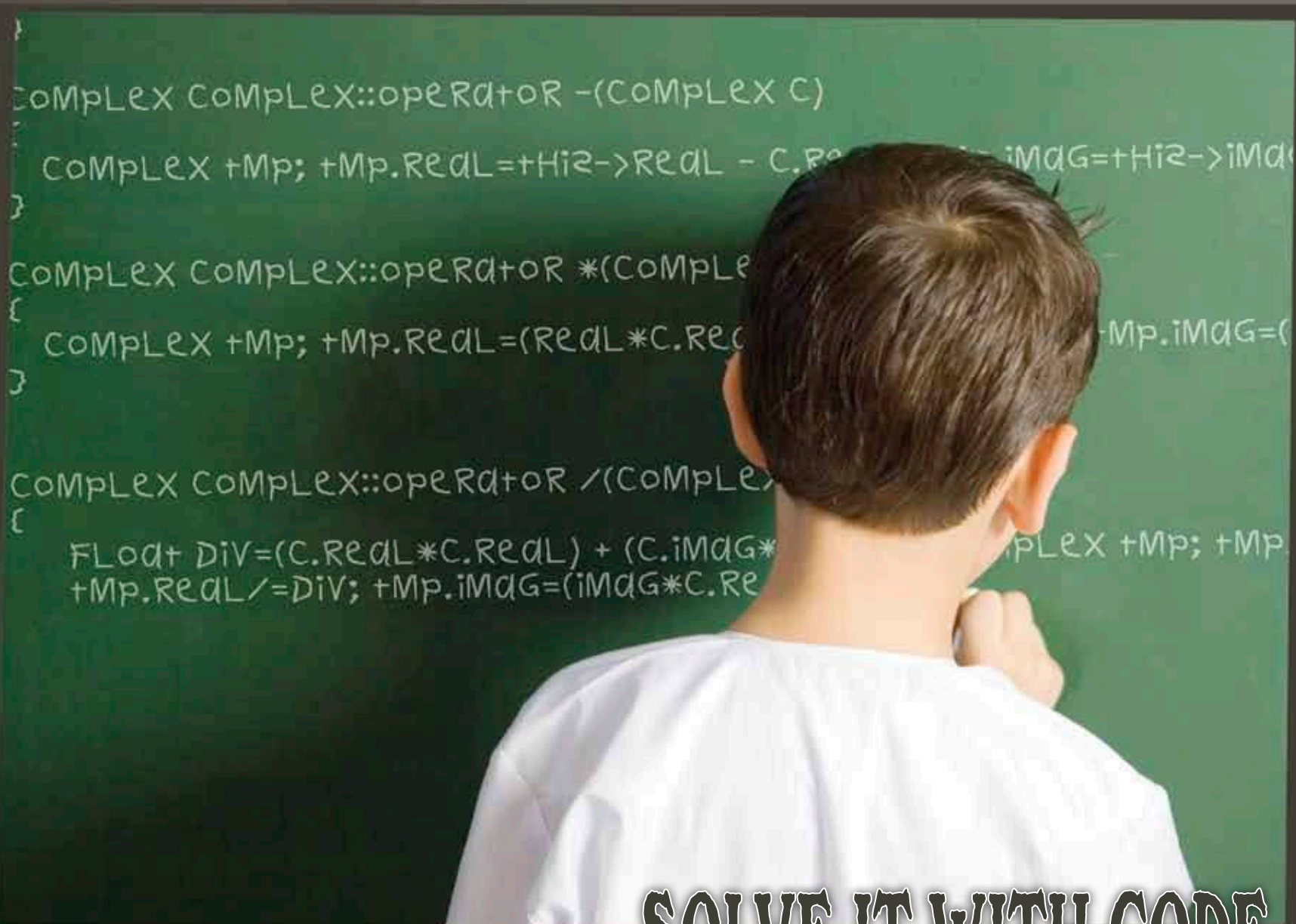Information Assurance
Technology Leadership
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VIEW 3D

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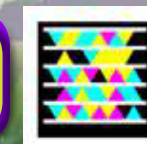
Stefany Nakatsubo

Major: Technology Forensics
Home Town: Sao Paulo, Brazil

Originally from Brazil, Stefany was living in New York and looking for a college to study technology. "I went to a NACAC College Fair and UAT had a big, colorful, awesome booth. So I got some information and when I looked at the majors, they had exactly what I wanted. So I applied, got accepted and I am really enjoying everything about UAT. My father is very curious about the University, so he's coming to visit from Brazil soon.

"The curriculum is very challenging at UAT. You definitely need to study and do all your assignments. I feel like I'm getting a great education, so I know I will have to work for it. Best thing about UAT? Basically, I'm a geek and I feel right at home."

Timothy Slovacek

Major: Game Art and Animation
Home Town: Chicago, IL

"I transferred in to UAT after getting an associate's degree at a local community college. It was a good school, but it didn't fit what I wanted. Then I started following a *World of Warcraft* podcast that is produced by UAT's Dean of Academic Affairs and Professor, Rebecca Whitehead, and that was how I discovered UAT. I figured if a Dean had a serious gaming podcast going on, then the college was certainly going to have what I was looking for to break into the industry.

"I really like the atmosphere at UAT. There's always something interesting to get involved in – it's not a typical contest. For instance, this Saturday we're having a chess tournament, using students as live chess pieces."

Sabrina Jones

Major: Web and Social Media Technologies
Home Town: Rialto, CA

"My first year is going well. I love the community at UAT. Everyone has been nothing but nice to me. I really feel like I have a support system here, which is really nice, coming from out of state. I originally heard about UAT from an ad in my brother's *Game Informer* magazine.

"Many of my friends are going to a community college back home. From what I hear from them and from my own comparison to previously taking some courses at Cal Poly – Pomona, I've found UAT to be much more focused on my area of technology interest and more involved in my success – now and for the future. Staff and Professors here really are concerned and helpful about what we're doing and how we're doing."

Jacob Sorenson

This morning it seemed that everyone and their mother had the urge to call and wake me up, that was fun. There is a blood drive today so I'll be bleeding out for that.

So everything is bunching up at the moment with my internship, all the little projects are coming to a head at the same time and I'm pretty well strung out over a couple of different things. This is all fine and dandy however, as it is keeping me busy. Got caught up in my classes but it's still going to be a bit of a hassle to keep up.

Keep reading! Find out how Jacob is doing at www.uat.edu/meetjacob

Kimberly Mann

Hey, not much of a change from the last update in that I still have a ton of homework in Art haha. However, we're taking a trip to the San Diego Zoo the weekend after next or so (I can't remember exactly) and it's gonna be awesome! We also have midterm break next week, so I can relax and catch up on some stuff, as well as do some painting.

I also finally got Windows 7 x64 working on my big computer. It's very nice I must say, though it looks like they definitely took a lot of stuff from Mac's OS. That makes me happy though, since it's all really pretty and fun to use.

See what else Kimberly is up to at www.uat.edu/meetkimberly

JD Cerince

With one year left I recollect about how I was my first year here and how excited I was to pursue my career. I now find myself dangerously close to beginning that career. After my trip to GDC I realized how near my future was.

A couple of things on my plate this year are making sure I take all the classes I need in order to graduate and my new Game Project. So far both my school work and the project are going well but I've had to compensate for my time away at GDC over the past few weeks. Something I have learned about myself and am going to explore over the next couple of semesters is that I love working with and leading people.

Hope everyone is doing well and I'll be updating you soon.

Get an update on JD at www.uat.edu/meetjd

{ free }

Making the Most of Free Hosting and Other Free Web Services

> Most free web hosting services are supported by advertising that they place on their customers' hosted websites. This means that, typically, your hosted website is under a sub domain (e.g., mysite.hostname.com) which can negatively affect SEO and pagerank, rather than a second-level domain (e.g., www.mysite.com). If you can live with these trade-offs, free hosting may be the answer to host your site or provide ... search out one that meets your particular needs. >> Here's a sampling of free hosting sites that serve a variety of needs to give you a starting point for your search for the best situation. But remember, we don't warranty, authorize or recommend these sites unreservedly; your mileage may vary, and because others have liked these doesn't mean you will too – do your research with open eyes. > **x10hosting.com** This provider gives you 500 MB of disk space, FTP access, second level domains, and it supports PHP 5, ASP.NET, Perl, MySQL, .htaccess, and POP3 and IMAP email. With their basic service you are not required to have ads on your site. ... unlimited bandwidth. You can upload via a file manger or FTP import. No ads or popups get placed on your hosted web pages. You can setup multiple add-on domains and sub domains under the same web hosting account. > **tripod.lycos.com** Somewhat of a love/hate situation here. Many users hate the ads they put on your site and some of its other limitations, but it is one of the oldest and most reliable free web hosts in cyberspace. You get 20 MB webspace, a subdomain, and a file manager and editor. ... both bitmap and vector graphics. > **photopos.com** This photo and graphics editor lets you work with multiple images simultaneously, edit and enhance them, apply filters and special effects. This is a Windows program. >> *Free Tools to Create and Author Your Own DVDs and DVD Movies* > **protectedsoft.com/products.php** A free DVD authoring tool that allows you to create DVD ... disks in three clicks. The video can be captured directly from TV tuners, webcams, DV cameras or from video files. Video formats supported include AVI, DivX, XVid, MP4, MPG, WMV, ASF, MOV etc. You can burn the DVD you created to CD-R/RW, DVD+R/RW, DVD DL, etc. This is a Windows program.

> **snappoll.com** This free polling service allows you to create a poll than can either be embedded on your site or linked to directly on their site. There are ads displayed on your results page. > **FreePolls.com** This is an ad-supported free web poll host. It places its logo on the polls and the results page. It also inserts text advertisements in your polls, with multiple banners on all results pages. Your poll is limited to 256 MB of traffic. > www.tumblr.com; www.typepad.com; www.blogger.com; www.wordpress.org *Start a blog!* > www.getdropbox.com: 2 Gigs free cloud storage service with ...

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GAME DESIGN AND PRODUCTION

MICHAEL EILERS
Associate Professor, Systems Development
BA, Arizona State University
MBA, North Central University

Digital Distribution: certainly this has been hot before, but this holiday season seems to have set it on fire. Price wars between Steam, Impulse and Direct2Drive have seen games such as *Mass Effect* down to $9.00 a copy and even brand-new games launching with 10% discounts. To make up for the lack of a physical copy, many of these are coming with built-in DLC (downloadable content) to sweeten the deal. The only problem here is how to wrap a digital download as a gift! Mobile gaming – we already know that the iPhone is on the prowl as a game platform with the potential for a market in the tens of millions. Now, we're seeing traditionally weak gaming platforms such as smartphones and netbooks gain new graphics muscle with powerful AMD/ATI, NVidia and Intel chips featuring a lot more power per pixel, expanding the audience for PC games.
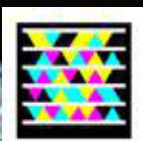
NOT

Surprisingly, the Wii is not hot, for the first time since it's debut. Somehow they managed to enter the holiday season without any big or notable IP; no *Zelda*, no *Metroid*, no *Mario Galaxy 2*, no anything, and as a result the console seems almost invisible. Only a new *Super Mario* is on the horizon, and that's a 2D side-scroller, certainly not a big seller in this market. With only "2010" as the date for any big Nintendo-born IP releases, a lot of Wii gamers might skip the console in favor of the big-name releases coming out for 360 and PS3.

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ROBOTICS AND EMBEDDED SYSTEMS

RYAN MEUTH
Professor, Robotics & Embedded Systems
BS Computer Engineering, Missouri University of Science and Technology
MS Computer Engineering, Missouri University of Science and Technology
PhD Computer Engineering, Missouri University of Science and Technology

iRobot and DARPA coordinate on the creation of the world's first (and creepiest) soft shape-shifting robot, completely skipping the original Terminator and shooting for the T1000.

The Ishikawa Komuro Laboratory has achieved a quantum leap in robot hand technology with the development of extremely fast robot manipulators. The hands are fast enough to throw and subsequently catch objects, as well as manipulate extremely small objects using everyday human tools like tweezers.

NOT

Ugobe, the makers of the extremely cute robot baby dinosaur, Pleo, has gone out of business. However, their manufacturing company, Jetta, is re-launching Pleo so that robo-dino lovers everywhere can continue to raise these mechanical beasts.

NETWORK SECURITY

DIANE BARRETT
Professor, Computer Forensics, Network Engineering, Network Security, Information Security
Faculty Council Chair, Systems Development Group
Associate of Arts and Sciences, Remington College; BS, Remington College; MS, Capella University

As Net attacks become more advanced and spread more quickly, organizations require data correlation to not only determine the scope of the incident, but also to understand how systems were compromised. The resulting data can possibly be used for prosecution, especially if the damage was caused by a malicious insider. Listed in the 2009 Google Summer of Code project ideas is a project to promote easy correlation of system activities with the network activities.

This is the main focus of a lab that will presented by the students from UAT's CFR210 class next month at Paraben's Forensics Innovative Conference.

Analytics, when paired with visualization technologies, help present a better picture for malware analysis and detection. Also, listed in the 2009 Google Summer of Code project ideas is a project for improving Honeynet data visualization using DAVIX, PicViz and AfterGlow.

NOT

The state of broadband in the U.S. – This month, the Finnish government enacted a law making 1Mb broadband Internet access a legal right. The law will take effect in July 2010. Eventually, citizens may be guaranteed the right to 100Mb broadband connections. Earlier this year, France declared Internet access to be a human right.

HUMAN-COMPUTER INTERACTION

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

Augmented reality is going to move from being just a cool innovation to being quite useful. For instance, its use in mobile devices incorporated in social media has great potential. Together with the explosion of 3D applications, augmented reality will continue to transform the online world making for a very rich user-centered environment. Future innovations will blur the line between reality and fiction and bring more useful information to our fingertips faster than ever.

For web builders, it is very important to be aware of those trends and how the Internet is adapting for marketing. It is no longer going to be as critical to just design a web page, as it is designing the whole web experience.

From Austria comes "Fluid Forms," a young design team with a very original approach to users and their product line. They have literally put users in charge of designing (customizing) their products. Using simple, user-centric navigation, they can create their original products. Check the company's website:

http://www.fluid-forms.com/

Whether or not giving ultimate control and power to the users is the way of the future remains to be seen. In this specific example, it is important to understand who the audience might be for this niche marketing . Regardless of ease of use, the owners of the company admit that their products are indeed meant, at least for now, for computer savvy, highly educated people.

NOT

Esquire magazine – terrified about the possible impending demise of print media – has announced that an upcoming issue will include what they call "augmented reality." But all they are doing is adding some webcam-scannable QR codes to the front cover that appear to bring cover boy Robert Downey Jr. to life. Desperate to prove their relevance amid the digital onslaught, *Esquire* is using the technology as something of a cheap trick, rather than a useful application.

READY SET Go

Photo courtesy of NASA

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

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

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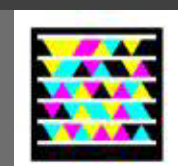
Who's admitted to UAT?

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

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

So...what's Next?

Prospective students may apply online at www.uat.edu/apply. 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.

2010 Dates & Deadlines

Spring 2010 Semester
Semester: January 11 – April 30
Spring Orientation: January 7
Spring Break: March 15-19

Scholarship deadlines for first-time entering students for Spring 2010
> Scholarship application deadline: September 8, 2009
> Enrollment deadline: Within 30 days of notification of an award

Scholarship deadlines for first-time entering students for Summer 2010
> Scholarship application deadline: January 11, 2010
> Enrollment deadline: Within 30 days of notification of an award

Fall 2010 Semester
Semester: September 7 - December 17, 2010
Fall Orientation: September 1-4, 2010
Midterm Break: October 8, 2010

Scholarship deadlines for first-time entering students for Fall 2010
> Scholarship application deadline: May 12, 2010
> Enrollment deadline: Within 30 days of notification of an award

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

James Bowman
Associate Professor: Animation (Modeling, Game Animation, Digital Animation)
B.A., Fine Arts – Ohio State University
M.F.A., 3D Animation – School of Visual Arts, New York, NY

Originally from Columbus, Ohio, James taught at two of the country's leading institutions, New York University and the Pratt Institute in New York, before coming to UAT just a couple of months ago. He's already discovered that "UAT gives an instructor all the tools they need to help students learn and succeed, whether in the classroom or online."

"I really like the openness of the interaction between students and faculty at UAT."

How does he like living in Arizona? "It's more like Ohio than New York – laid back, open. But the weather can't be beat – 85 degrees in November is very easy to get used to." Other than his teaching duties, James stays busy with an art and animation business he and a friend started just to have a venue for developing their own projects.

Todd Spencer
Associate Professor: Media Arts (Digital Media; Digital Video; Virtual Modeling and Design)
B.M., Percussion Performance – Wheaton College, Wheaton, IL
M.M., Interdisciplinary Digital Media and Performance – Arizona State University

Todd arrived at UAT in 2005 to create and expand the existing audio curriculum, with a focus on audio's natural interdisciplinary connectivity.

"My preference is to focus on the future, and UAT gives me the perfect opportunity to do that."

He looks forward to students benefiting from increased exposure to a multimedia, multidisciplinary approach to music and sound. He was recently involved in a very interesting multimedia project with student James Grant, which definitely has commercial potential – see the article on "STOC" in this issue. "One of the reasons I chose UAT to teach is that the traditional academic study of music has always had a strong focus on the past," Todd said. "My preference is to focus on the future, and UAT gives me the perfect opportunity to do that by exploring the application of advancing technologies to traditional music and sound with my students, thereby taking the creation and reproduction of music into the future."

Ryan Meuth
Professor: Robotics and Embedded Systems
B.S., M.S., Ph.D., Computer Engineering - Missouri University of Science and Technology, Rolla, MO

Somewhat of a newcomer to UAT, Dr. Meuth teaches in the growing field of Robotics, which is very hot right now and due to grow in popularity and relevance. He also teaches courses in Artificial Intelligence and Artificial Life. While teaching at his alma mater, where he also founded the Robotics Competition team, Ryan discovered an opening on the faculty at UAT online and, since personal circumstances dictated he live in Arizona, it turned out to be just what he was looking for.

"My job is also my passion. I'm right at home on a campus full of geeks."

During an internship as an undergrad, Dr. Meuth found he didn't really enjoy the mega-corporation culture. He says, "I wanted to find my own path and to work with people who had more academic interests." He has a patent pending and one in progress for work he did while working at Boeing Phantom Works in Seattle during the summer of 2006. In addition, he has published a number of papers in his fields of interest.
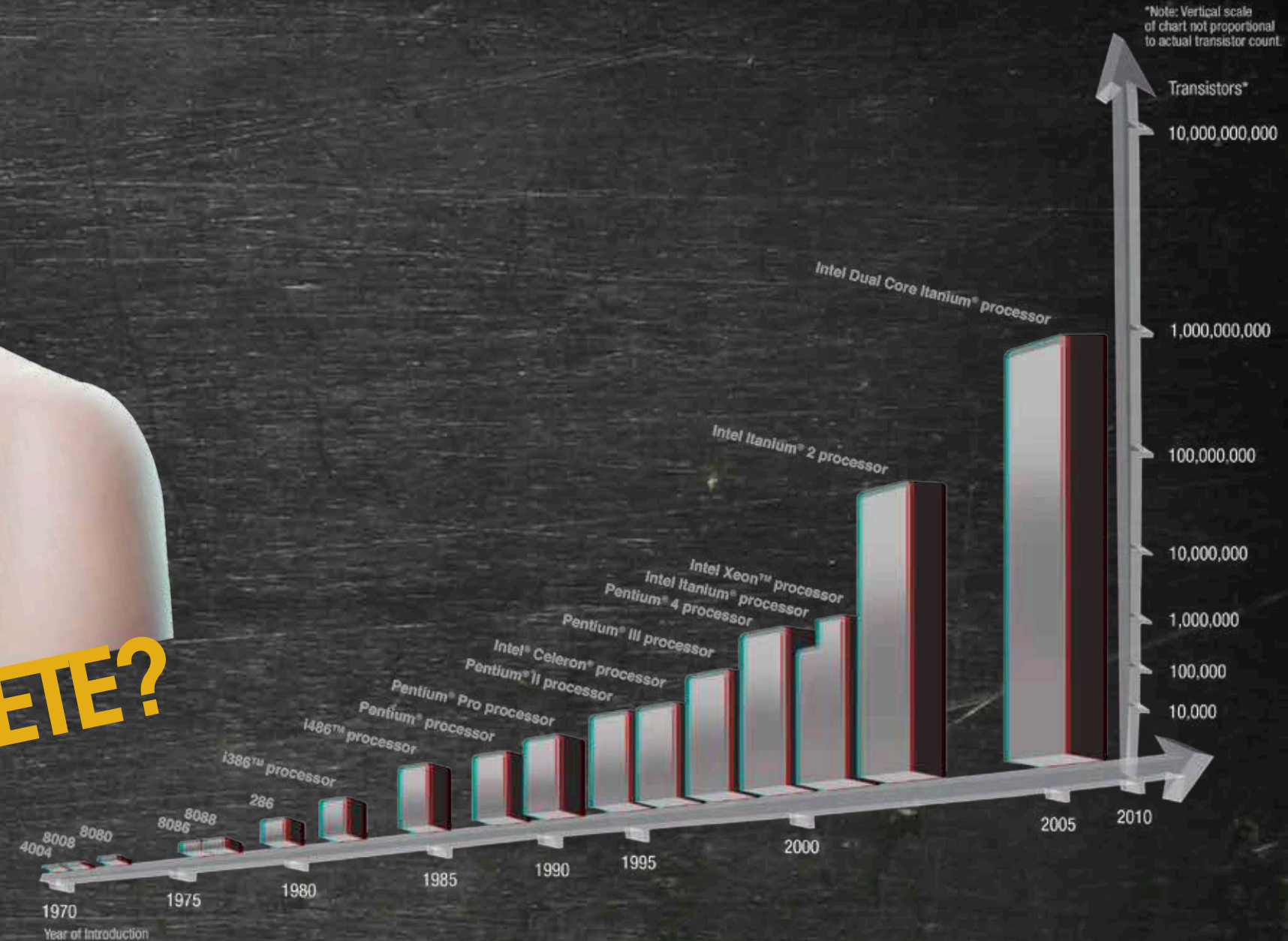
MOORE'S LAW NOW OBSOLETE?

*Note: Vertical scale of chart not proportional to actual transistor count.

Transistors*

10,000,000,000

Intel Dual Core Itanium® processor

1,000,000,000

Intel Itanium® 2 processor

100,000,000

Intel Xeon™ processor
Intel Itanium® processor
Pentium® 4 processor

Pentium® III processor

Intel® Celeron® processor
Pentium® II processor

Pentium® Pro processor
Pentium® processor

i486™ processor

i386™ processor

286

8088
8086

8008
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4004

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1970   1975   1980   1985   1990   1995   2000   2005   2010

Year of Introduction

More than 40 years ago, in 1965, Gordon Moore, cofounder of Intel, predicted that the semiconductor industry could double the number of transistors it was possible to place on a chip every 12 months for about the same cost (Moore later amended it to 24 months as the technical challenges became more formidable). And for all those years, Moore's Law has held true, making computers cheaper and faster and more powerful. It seems almost that long ago that experts began warning that Moore's Law would eventually run smack into the laws of physics, bringing everyone's giddy ride to an end. It hasn't happened yet.

There are a number of reasons for this. First of all, Moore's Law isn't exactly what most of us seem to think it is. It's not (and never has been) a true "law" of physics or technology development. Also, what it means and how people interpret it has continued to change over time. Even Moore himself hasn't always been consistent about what it means. In fact, published articles often get the basic facts wrong, saying that originally Moore's Law was about the number of transistors on a chip doubling every 18 months and it was later pushed back to two years.

Actually, the original statement from Moore was about doubling every 12 months, and he was the one who later revised it to two years. At some point, others seemed to take an average of the two projections and say it was 18 months. The more important point, however, is that it doesn't really matter. With ever-increasing pace of innovation, the specifics of Moore's Law have long since lost their significance, and its true importance today is simply as a way of saying that technology gets better and cheaper at a rather rapid pace— and that's likely to continue for quite some time whether or not chip makers figure out how to squeeze more transistors onto a chip.

Justin Rattner, the Chief Technology Officer at Intel, insists the company can keep doubling the number of transistors on a processor through several more generations of chips over the next decade.

The trouble isn't capacity, it's speed. A few years ago microprocessors reached 3GHz. You can't make them faster because they then begin to overheat, degrading performance if not actually melting the chip. To solve that problem, the industry began making chips that perform several tasks at once, instead of doing a single thing faster and faster. These days we're seeing dual-core and quad-core chips, in other words, processors with two or four tiny computing engines on a single chip. Within a decade we will likely see chips with 100 cores, maybe even more, Rattner says. Richard Behrens, frequent contributor to UAT's *Journal of Advancing Technology*, says, "Ray Kurzweil's book , *The Age of Spiritual Machines*, a sweeping vision of how computer technology is expected to evolve over the next few decades, vividly shows the effect of Moore's Law by predicting that at some point in the near future, a single computer chip will be more powerful than a human brain."

But that raises a new problem: how to put those tiny side-by-side computer engines to good use. Operating systems aren't prepared to handle it and neither are programming languages or development tools. In fact, even the programmers themselves, who have all come of age writing software to run on a single engine—serially, that is, not in parallel.

The Broader Vision of Older Professors,
Combined with the Fresh Perspective of Younger Students, Provides Exponential Advances in Innovation

Earlier generations of scientists didn't have to wade through quite as much preexisting work as today's before making an original contribution. Today, data and research in technology and the sciences has not only grown significantly, it continues to accumulate at an increasing pace. This is one reason that those who study innovation are now looking at the contributions made by scientists and inventors in their 30s, 40s and beyond. Innovators are now establishing themselves much later in life. A common saying among innovators is "we are standing on the shoulders of giants," meaning that the work of previous scientists and engineers form the foundation for today's innovations. When the mountain of previous research keeps growing higher and higher, it takes longer to absorb and apply its lessons, thus the shift toward major contributions coming later in life.

More and more, the groundwork of innovation is interdisciplinary and builds on deep understandings of multiple technologies. That depth and breadth of understanding is often the key held by a professor or group of professors, who may have decades of scholarship and experience. In a university environment, you often have several professors and young students from the professor's labs. The professor may be more likely to provide the broader vision and draw concepts from across a range of other disciplines. The students, meanwhile, may be more likely to provide a fresh perspective and pursue new tangents. Put them together, and the result is concepts that neither would have generated alone.

gadgets +GIZMOS

Alex Reader

Sure you've seen Android applied to smart phones and notebooks, but Spring Design's Alex Reader is the first e-book of its kind to be powered by Google Android. This dual screen reader provides the efficiency of reading on a 6" EPD (electronic paper display) screen and the convenience of a second 3.5" LCD screen powered by Android that allows you to browse the internet using Wi-Fi or 3G. The Alex is a mobile wireless e-book that will enhance your reading experience by putting the web at your fingertips. Alex is set to release in early 2010.

Projected list price: $359

Archos 9" MiniPC Tablet

This PC may be the thinnest and lightest of its kind at 0.67" thick and 800g, but this sleek mini tablet harnesses the power of PCs twice its size. This ultra light tablet offers hard drive options of 60 to 160GB and features the Intel® Atom™ processor Z5xx series and Intel® System Controller Hub. The Archos 9" MiniPC Tablet also offers rich entertainment content and multimedia features including high definition video playback, VOD and digital TV reception.

Available now for preorder.

Projected list price: $549.99

Xbox Project Natal

Sure to revolutionize the world of gaming, Xbox 360 and Microsoft are introducing the first controller-free gaming device that works with every Xbox 360 console, codenamed Project Natal. This full-body gaming experience gets you off the couch and in the game by tracking your body movement while responding to commands, directions, and even a difference of emotion in your voice. Not only that, but to add a personal touch, as part of the Project Natal sensor, a video camera that delivers the three basic color components (RGB) helps enable facial recognition and more. Look for this one to hit stores in late 2010.

You can get a sneak peak of the game in action at http://www.xbox.com/en-US/live/projectnatal/

Projected list price: Not Determined

Sony Ericsson MH907 Motion Activated Headphones

Sony Ericsson's MH907 headphones are the first motion activated headphones on the market. Pausing your favorite song is as simple as taking one of the earbuds out of your ear, ready to listen again? Just pop the earbud back in. Works the same for phones too. Sony Ericsson's SenseMe™ Control technology allows the user to handle music and calls from their mobile device easily. These innovative earphones have just been released in the UK, so keep your ear open for their arrival stateside.

Projected list price: Not Determined

did you know...

UAT students work in teams to invent gadgets and gizmos of their own? Check it out at uat.edu/studentprojects

Gavari Design Stress Watch

This stylish watch can not only tell you you're late for class, it can monitor your stress level and help you keep it in check as you race to get there. Italian-based Gavari Design is developing a watch that will report the biofeedback of several body functions, including stress, by utilizing colors as codes on a graphic chart. If you look down to see that your display is showing warm colors and a full stress line, you'll know it's time to relax. By slowing down your breathing and finding an optimal breathing rate, you'll literally see the display change back to cool colors and a decreased stress line.

Projected list price: This product is still in development, no list price available

FIND *what's* OUT *next*

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WHERE TO FIND WHAT YOU NEED

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

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

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

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

www.g33ktest.com
What kind of geek are you? Take UAT's Geek Test and find out where you fit in the wide world of geeks!

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

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

LEARN MORE AT www.geekedatbirth.com

From Top Left: *Lucas Mateyko, Andrew Dyksterhouse, Gregory McKee, Ryan Andrews, Russel Finehout, ???, Kevin Fawcett, Michael Behringer, Chris Momose, Manican, J. Conner?, Matthew Scheunemann, Andrew Pfeiffer*

:40

:40 Past Midnight, a UAT student game project, is a third-person survival horror set in the near future after an apocalyptic destabilization of world governments.

Imagine that you are Marine Special Forces Captain Daniel O'Connor. You and your team have recently been awakened from the deep coma-slumber of cryogenic freeze only to realize your world has gone from merely hostile to horribly deadly. Fighting against hordes of mutated beasts, the team must make their way through a bloody, heart-pounding adventure in an effort to eke out a place for humanity amidst this desolate new world.

The nuclear winter was a nightmare. And the outbreak didn't help things. Across this wasteland, horrible animals—feral, disgusting, dangerously mutated from their former selves—preyed on frightened humans.

As nature turned against humanity and this twisted world grew darker, the team makes a last ditch effort to save the human race.

"The way the project started," said Andrew Pfeiffer, Environmental lead, "is that a bunch of us were working on another game project and when it was completed, we wanted to do another one. So we started *:40 Past Midnight* and brought other people on board as well. As the game developed, it became even more important to some of us, because several of us got internships with the company that is creating the engine we're using for the game. Last year the company did a presentation at Tech Forum and after a few of us saw it, we decided that it was the engine we wanted to work with on *:40 Past Midnight*. Royce Tucker, our Lead Programmer on the project, was recruited by the company for an internship because the engine development was very programming heavy and they needed help. That was one of the reasons

they came to Tech Forum – to recruit programmer interns."

The team chose to use a sound-based design system. When you play the game, you can see the monsters and what they are doing, but they can't see you – they can only hear you. So, the monsters react to what they are hearing, not what they are seeing. For instance, a monster may not see you hiding behind a wall, but if it hears you, it will run around the wall and go all apocalyptic on you. This concept adds originality to what might otherwise be just another "shoot 'em up" game. The main character has a unique weapon, a gauntlet that emits various sounds, which each have different effects on the creatures. Sound Designer Rene Aguilar explained that, "In survival horror games, the player is never super-powered – if you have super-powers you won't be scared. The sound gauntlet gives some power, but with limitations. If the player uses it too much, the monsters can figure out where he is and converge on him to destroy him. A lot of players underestimate the power of sound in games. If you do it right, it adds dimension and suspense to the game, without being too overt. If you do game sound design wrong, it's very noticeable and would draw complaints from players."

The team was also very proud that they had created a horror game without zombies.

"Zombies are way overdone, so we tried to take a more animalistic approach - man vs. nature, rather than man vs. zombies," said Project Lead, Gregory McKee.

Visit www.uat.edu/tmp and see more photos, links and information about the Manhattan Project!

Team members:

Design Team:
Gregory McKee — Project Lead
Chris Momose — Level Designer
Andy McCutchan — Designer

Art Team:
Andrew Pfeiffer — Environmental Lead
Andrew Dyksterhouse — Character Lead
Matthew Scheunemann — Environmental Artist
Ryan Andrews — Animator
Russell Finehout — Texture Artist
Ryan Cabral — Texture Artist
Michael Behringer — Concept Artist
Chase Henderson — Rigger/Animator

Programming Team:
Royce Tucker — Lead Programmer
Kevin Fawcett — Programmer
Lucas Mateyko — Programmer

Audio Team:
Prof. Todd Spencer — Composer
Rene Aguilar — Sound Designer

AN - 64
The Cutlass

THE MANHATTAN PROJECT STUDIOS

G33KOSYSTEM

We call ourselves the University of Advancing Technology and we're quite serious about that, especially the Advancing part. The University's mission is "To educate students in the fields of advancing technology to become innovators of the 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.

Microsoft Surface

Xbox 360 Development Station

Green Screen Room

Updated Infrastructure

Our capabilities are built on Microsoft enterprise server architecture. Our user accounts are managed through Active Directory and through a series of Single Sign-on technologies seamlessly connect to 26 different data systems. The University's datacenter contains more than 60 physical servers and 20-30 Virtualized Servers.

The University is connected to the Internet through a Metro-E fiber connection that allows for upload and download speeds of up to a gigabit per second. Using a combination of Boarder Gateway Protocol and Policy Base Routing, the University has connected the student dorm, Founder's Hall, with a 125 MBit WiMax wireless connection encrypted with Advanced Encryption Standard (AES-256). The Policy Based Routing ensures that if either provider fails, the University maintains connection.

The campus offers free wireless coverage to all students and visitors and maintains a separate network for the University administrators.

To the right you can see a few of more than 60 campus servers and new equipment being utilized in the Green Screen room.

Updated Workstations

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

When necessary the University deploys additional, specialty workstations for specific uses. Above you can see an Xbox development workstation; to the right, a 360 development workstation; and at lower right, a 3D printer that copies and builds three dimensional models.

Updated Software

The University offers, at no charge to students, access to professional level applications that directly relate to their technology field of study.

3D Printer
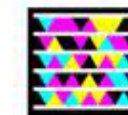
Log on to **www.uat.edu/g33kosystem** to get the skinny on the latest advances around the UAT campus.

BACK GROUND on UAT

The University of Advancing Technology (UAT) is a private college for techno-geeks that merges the values of the traditional academy with the modern technology campus, a fusion that enhances our ability to fulfill the mission of educating students in the fields of advancing technology to become innovators of the future. UAT students attend a technology-infused campus located in the Valley of the Sun, a setting that promotes learning, collaboration and technology in ways that model the future of private college campuses.

UAT is an ideal environment for students who value their own uniqueness and the power of technology in education. The fusion of the traditional academy and the technology college results in a geek-friendly university that is both non-exclusionary and focused on Year-Round Balanced Learning, an educational methodology that ensures students achieve their academic goals in a shorter period of time than traditional colleges. UAT is at the forefront of developing academic programs that tend to be unique among academia or emerge years ahead of other schools, such as Artificial Life Programming and Robotics and Embedded Systems, as well as our established Game Development majors that merged artistic and programming aspects long before other colleges chose that focus for themselves.

UAT's academic programs deliver a general education foundation and a humanities-based approach to technology education.

ACCREDITATION

UAT holds accreditations and certifications from such organizations as ACICS http://uat.edu/about_uat/default.aspx, 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, a Commission of the North Central Association of Colleges and Schools.

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

STUDENTS

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

FACULTY

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

LOCATION

Tempe, Arizona (Phoenix Metropolitan area)

2010 TUITION

Undergraduate tuition: $9400.00 per semester
Graduate tuition: $5700.00 per semester
UAT-Online tuition: $5400.00 per semester
For more information on UAT Tuition please visit www.uat.edu/tuition

FAST FACTS

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

* Information based on data collected from the September 2008 class of incoming freshmen

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.

The University of Advancing Technology is accredited by the Accrediting Council for Independent Colleges and Schools (ACICS - 750 First Street, NE, Suite 980, Washington, DC 20002-4241, 202-336-6780) to award associate's, bachelor's and graduate degrees. The Accrediting Council for Independent Colleges and Schools is a national accrediting agency, recognized by the United States Department of Education. ACICS's accreditation of degree-granting institutions also is recognized by the Council for Higher Education Accreditation (CHEA).

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

ASK A UAT STUDENT

Q: HOW DID YOU FIND OUT ABOUT UAT?

Strangely enough, my Mom heard about it and suggested I look into it. I had considered and visited a lot of similar schools – DigiPen, Full Sail, Cal Art Institute – but none of them gave me the feeling that I could learn what I need to know to pursue my passion and still have fun at the same time. UAT gave me the feeling that I could learn and still have fun. And that's exactly the way it is. At my high school graduation I heard, "Follow your passion and work will never feel like work," and that's proving to be true.

Q: CAN YOU COMPARE AND CONTRAST UAT WITH OTHER COLLEGES YOU'VE HEARD ABOUT?

All my friends from high school ended up at "party schools." That's not what I was looking for. If I want to party, I can always go over to Arizona State. I came here for an education in something that I really love to do. I've spent night after night working on a film project with one of my professors and even though it's a lot of work, it's been a blast. And, I've learned a tremendous amount about the real process of making a film, which I hope to do someday.

> "UAT gave me the feeling that I could learn and still have fun at the same time."

Ryan Andrews
Class: **Sophomore**
Major: **Digital Video**
Home Town: **Detroit, MI**

TAG THIS TO READ MORE STUDENT Q&A OR VISIT www.uat.edu/askastudent

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

MEET THE STAFF

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

MEET THE ENTIRE UAT STAFF AT www.uat.edu/staff

Ashley MORRIS
New Student Coordinator / BA from Grand Canyon University; currently a graduate student at UAT in Emerging Technologies

Ashley has been at UAT for a year and a half and is involved in assisting and counseling those students who have enrolled, but not already started, classes. She helps them deal with everything from academics and course scheduling to what to bring to campus when a student moves in.

Ashley says that she *"had a really great college experience and so I find it very rewarding to help students prepare for college and be successful once they get here – whether it's on campus or online. Something I find unique about UAT students is they know exactly what they want to do and their future career goals. It is exciting to help them start on the right path."*

JEFF MATHEWS
Communications Coordinator / BA from Oakland University

Jeff gets to spend his days talking with students who are considering attending UAT. He explains the ins and outs of the application process, GPA and the like. He also shares his interest in technology and the wealth of fun opportunities outside the classroom. He is also in charge of UAT's Fly-in G33K program which gives out-of-state college searchers an opportunity to tour our unique technology-infused campus, sit in on classes, eat at the campus cafe, meet with Admissions and Financial Aid representatives, attend special events planned by UAT Residence Life and Student Life and, best of all, be the overnight guest of a current UAT student.

Jeff loves the small university atmosphere. *"Everyone is very nice, outgoing and we're all into technology of one kind or another,"* he says.

HIBA AL-FATLE
International Student Coordinator / BS from the University of Technology in Baghdad, Iraq, and a Cambridge diploma in Human Resources

Hiba has only been in the U.S. for eight months. She began her UAT career this past summer after the International Refugee Committee helped her arrange a U.S. visa and settle in the Phoenix area. Hiba says, "So far, I'm loving UAT, helping students and the family atmosphere. The weather in this part of the U.S. is very much like my country. There is a large Iraqi community here also."

As an International Student Coordinator, Hiba can use her own experience to help those students from outside the U.S. who are applying and enrolling at UAT to navigate easily through what can be a complex process. She also helps international students get acclimated to life in another country.

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JONATHAN HARBOUR

VIEW 3D

FACULTY PROFILE

PROFESSOR JONATHAN HARBOUR AUTHOR OF 11 BOOKS ON GAMING

Jonathan Harbour is Associate Professor of Game Development at UAT. Catch him any time on campus and very likely he'll be working on one or another game library or porting code from one language or platform to another for a class project. He teaches a variety of game programs and topics, such as DirectX 9 SDK, Allegro, Nintendo GameCube, Sony Playstation 2, Nintendo Game Boy Advance, Microsoft Pocket PC, DarkBasic, Web games, Java Wireless Toolkit, XNA Game Studio. His areas of expertise include Game Programming, Software Engineering and Game Production. His primary interest is in cross-platform and game engine programming. He also teaches proprietary courses covering Nintendo GameCube (Dolphin SDK) Nintendo GBA and Nintendo DS (DevKitPro), Sony PlayStation 2 (TOOL), Xbox 360 (XNA SDK), and cell phones (Java ME).

I AM A MANIAC WHEN IT COMES TO WRITING.

Professor Harbour also recently led a group of UAT students in the creation of *Aquaphobia*, an Xbox 360™ game that was developed for Microsoft's 2009 Dream Build Play Challenge. The game and its story are featured on page 28 in this issue of Geek 411.

If you think that sounds like a full work load for a professor, you might be surprised to learn that in his "spare time," Professor Harbour has authored 11 books, five of which have been popular enough to publish second and/or third editions. His last book, *Advanced 2D Game Development*, was published in 2008. He is currently working on a new multi-threaded game engine for his next book due out in early 2010.

Professor Harbour says, "I am a maniac when it comes to writing. I love game programming, and writing games of any genre or complexity, so it was a natural for me to begin writing on this subject back in 2000." In early 2006 he founded a small, independent game studio, Primeval Games LLC, as a creative outlet for producing humorous casual games, and the first product is *Starflight: The Lost Colony*.

GAME PROGRAMMING ALL IN ONE THIRD EDITION — JONATHAN S. HARBOUR

READ MORE

UAT.EDU/JONATHANHARBOUR
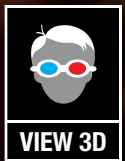
BUILDING THE ALPHA G33K NATION

JOCKS NEED NOT APPLY

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who is a technogeek?

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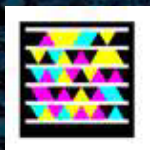
PROGRAMMING_CLUB
The Programming Club was founded to create a group environment for members to work on projects and to share knowledge regarding the C/C++ language. The group develops a combination of game and application projects in an effort to build skills, foster teamwork and expand knowledge.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

did you know...
UAT hosts over 15 Community User Groups every month? These groups welcome all UAT students to join in their monthly meetings. uat.edu/clubs

UAT's student clubs and organizations enhance the geek-friendly campus environment. The University Student Government (USG) is a team of officials who encourage self-directed Student Life organizations, coordinating student community service activities and providing a venue for feedback between students and staff. When you become a UAT student you will be encouraged to form your own club or group and the USG will be there to help you start!

www.geekedatbirth.com
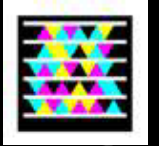
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You can imagine the environment at UAT with this dynamic collection of technology degrees, students, profeessors and faculty all focused on learning, experiencing and then innovating. Come be a part of the geekosphere.

You can talk the talk. Can you walk the walk? Here's a chance to prove it. www.uat.edu > 877.UAT.GEEK