

# BEHIND THE BITS



ISSUE 8

A CLOSE-UP VIEW OF UAT STUDENT INNOVATIONS



## EPIC FAN FILM TAKES HOLLYWOOD BY STORM

UAT students, alumni and faculty had the epic opportunity to collaborate with an all-star cast and crew to create a fan film adaption of author Vince Flynn's iconic hero Mitch Rapp in the independently produced short film "Mitch Rapp: Off Book." This large-scale action film, the first UAT has shot, is now playing on YouTube.

It all began when Hollywood actor and fitness model Andy McDermott ("Hawaii 5-0," "Sons of Anarchy") contacted Professor Paul DeNigris, Digital Video Program Champion, Phoenix-based filmmaker and Hollywood VFX artist, to propose they make the fan film. Talk about connections to the film industry!

Andy recruited Professor DeNigris to lead the effort. They had previously worked together on the award-winning Iraq War short film "Parallax." Professor DeNigris jumped at the chance to work with Andy again. Plus, he had a ready and willing crew of students, alumni, and fellow UAT faculty and staff to make it happen. The turn-around was short. The expectation was big. So he collaborated with his writing and producing partner Steve Briscoe to write the 15-page original script.

Mitch Rapp is a fictional character in a series of novels by Vince Flynn and in the planned film adaptation of "American Assassin." He is a counter-terrorism operative employed, first unofficially then officially, by the CIA. The primary focus of the character is thwarting Middle Eastern terrorist attacks on the United States, and he is presented as an aggressive operative who is willing to take measures that are more extreme than might be considered commonly acceptable.

When bureaucrat Charles Neimier blocks his path, Mitch Rapp goes "off book" to save teammate Riaz from a sadistic former KGB agent.

Along with Andy McDermott, other celebrities include repeat UATDV collaborator Ayman Samman ("American Sniper") and James Morrison ("24" and "Space: Above and Beyond") who filmed his cameo in Provost Dave Bolman's office on campus.

With just a few months to complete the film from start to finish, it meant complete dedication and long days, but in the end it not only was a valuable experience but an impressive portfolio piece for students.

"Despite the seemingly improbable deadline for the completion of this film, the 'Mitch Rapp: Off Book' cast and crew worked efficiently like professionals in the industry, and were able to meet deadline, and have a ton of fun while doing it," says UAT student Killian Davies, the film's first assistant director.

What Killian liked best about the project was the efficiency vs. quality of the entire production cycle. "This was one of the most ambitious projects UAT has done, and we had very little time to do it," he explains. "The cast and crew were able to work through production and post-production in a matter of a couple months to complete a high-octane, professional-quality action film."

Learn more about the power and connectivity of a respected UAT degree in Digital Video, Digital Media or Web Design.

### UAT STUDENT CREW

**DIRECTOR OF PHOTOGRAPHY:**

Jordan Wippell

**EDITED BY:**

Andrew Aguirre  
Patrick Kebert

**SOUND DESIGN:**

Paul Lopez

**VISUAL EFFECTS SUPERVISOR:**

Alex Dinh (alum)

**1ST ASSISTANT DIRECTOR:**

Killian Davies

**DIGITAL IMAGING TECH/ASSISTANT EDITOR:**

Brandon Scott

**KEY GRIP:**

Brett Chapman

**BEST BOY GRIP:**

Chase Harper

**PRODUCTION ASSISTANTS:**

Joseph Ciaramitaro  
Luis Torres  
Jake Turocy  
Emma Welch-Murphy

**VFX ARTISTS:**

Andrew Aguirre  
Nick Francia  
Patrick Kebert  
William Reges (alum)  
Robert San Pedro

**COLORIST:**

Tony Bonano

**TITLE DESIGN:**

Patrick Kebert

**TITLES ART DIRECTOR:**

Rick Ravenell (alum)

**BEHIND THE SCENES VIDEO:**

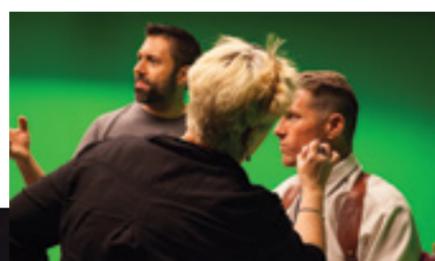
Alex Beaver

**STATE DEPARTMENT EXTRAS:**

Sharon Bolman (faculty)  
Daniel Link (enrollment)

**TORTURE TABLE FABRICATED BY:**

Mike Syfritt



Photos: Shari Corbett

# UAT'S STUDENT INNOVATION PROJECT FAIR





## SEEING IS BELIEVING.

Experience a Student Innovation Project Fair for yourself. Better yet, stay for a campus tour. Learn more!

# AN ELECTRIFYING EXPERIENCE

Energy radiates from the UAT Commons every day, but three times each year, enthusiasm powers up during the Student Innovation Project (SIP) Fair. Under the guidance of Dr. Natasha Vita-More, students presented more than 20 amazingly creative projects last winter.

This innovation showcase gives senior-level students a real-world opportunity to present an innovative project to groups – in this case to fellow classmates, faculty and staff. The Student Innovation Project component is a requirement for all students prior to graduation.

The fair begins with demonstrations in the Commons followed by individual break-out sessions in the classrooms. Project details are provided by team leads to an audience that includes faculty, who evaluate their presentations and provide valuable feedback.

The Student Innovation Project is a reflection of the UAT Experience – developing ideas, prototyping the ideas into viable projects and building them out. The development of their ideas into tangible projects builds impressive portfolios and further prepares students for future job opportunities.

## AND THE WINNERS ARE...

Two Student Innovation Project teams garnered awards at the last SIP Fair on the UAT campus: Help Falls and V.A.S.T.



### HELP FALLS

First film of its kind in Arizona.

Jordan Wippell (Digital Video) and Brandon Scott (Digital Video) took home both Viewer's Choice and Best in Show awards for Help Falls, Arizona's first interactive, narrative film that combines six sub-genres of horror into one cinematic experience. The film allows the viewer to make terrifying choices on behalf of the main character and features up to 30 possible endings.

Utilizing current interaction technology, Help Falls sets itself apart from the influx of at-home media by creating a narrative film intended to counteract the mundane and sometimes predictable nature of modern horror.

They've achieved the following results:

- > Completed three short films
- > Implemented "Choice" mechanic
- > Built foundations for a web series
- > Marketed successfully

Follow the journey: [uat.edu/helpfalls](http://uat.edu/helpfalls)



### V.A.S.T.

Talk about making a vast difference!

Here's the problem: Previously, the expense, restricted access and lack of training have been the barriers to access of important forensic data recovery tools that aid in the evidence gathering process. This can create real challenges for individuals and businesses alike. Volatile Data Acquisition System and Technology (V.A.S.T.) is an automated, open source forensic data recovery tool that solves the problem. Team V.A.S.T. filled the void between what's available in law enforcement forensics data recovery tools and civilian available tools by creating a system that is affordable to even the smallest companies, accessible by any person or entity and completely easy and intuitive to use.

V.A.S.T. is available in two ways: for free in its standard form or for sale as a complete package at a very affordable rate.

### TEAM

William Peterson (Network Security/Technology Forensics), Nathaniel Stringer (Network Security/Technology Forensics), Adam Brendan, Ian Guile (Advancing Computer Science/Network Security), Arthur Miramontes (Network Security)

# STUDENT PROJECTS

## VIRTUAL REALITY HEAD MOUNTED DISPLAY

Listen closely as you read this and you might just hear the cha-ching of money that can be saved with this Student Innovation Project.

UAT students Kenneth Vorseth (Game Programming/Robotics and Embedded Systems) and Ryan McDonald (Game Programming) set out to solve a problem with the Virtual Reality (VR) Headset: they designed the prototype for an affordable alternative to the more expensive models. This one has the same rendering capability as the \$800 HMD but with a potential price tag of under \$100.

The problem with Virtual Reality is that it can be expensive, resulting in a hindrance to consumer access which also limits AAA game companies from expanding their market of VR games. Without a lot of choices in VR games in the market, it makes it difficult for consumers to consider spending \$800 for the VR Headset, and potentially another \$1,200-1,800 for a computer that can run it.

Kenneth and Ryan zeroed in on the most expensive component within the VR HMD – the display. Their current VR, priced at \$120, runs off an old WVGA resolution (sub-HD) display. Plus, they have developed a fully internally tracked Virtual Reality HMD that is smooth and performs well with movements. Having their VR internally track its position and rotation relative to the outside world is not only

impressive, it's a first. Traditional market VR's of 2016-17 still all utilize expensive external laser/IR/camera systems to observe the wearer to display displacement and translations through 3D space.

What has Kenneth liked best about his project? "For under \$100, we've effectively built a prototype that has the potential to be revolutionary in many new ways, and challenge the current status quo of the slow-evolving VR market," he says. "Just because some consumer technology product is popular or fancy, don't assume the engineers actually put any effort into the build or the actual user experience. Assume they did everything wrong, and you need to figure out how to do it right; even if it's a few simple changes, it can go a long way."

It's complete at the moment, but ideas to continually innovate the device are still brewing, from practical to far-reaching: removing the internal display to reduce cost, developing affordable body-suit motion capture, developing companion objects to represent material in the virtual world, and even developing an EEG headset to "mind control" your avatar in the game to your emotions and thoughts. Whatever new systems work and make sense to merge to our project will be added in the future. Kenneth and Ryan are considering marketing the product.

**Kenneth and Ryan are examples of how innovative thinking is creating affordable new inroads in the emerging world of virtual reality. Innovation will drive where VR is headed, just what UAT empowers students to do.**

**Learn more about the power of UAT's Virtual Reality, Game Programming, and Robotics/Embedded Systems degrees, at [uat.edu/majors](http://uat.edu/majors)**

### PROJECT INNOVATIONS

- > First internally tracked.
- > First headset for under \$100 to run off a desktop PC. *(Phone VRs do processing on the phone side; this one does it on the desktop side)*
- > Affordable, and has the ability to run on low-quality laptops. *(Oculus/Vive VRs are unable to run on laptops due to "Optimus")*
- > Scalable processing, and can run any quality level your external computer can

### DEVICE OPERATION

1. First, plug a single USB-3.0 cable and HDMI into your external computer
2. Second, launch the game that supports our device. (VrSDK)
3. Third, put on the VR headset and any accessories
4. Fourth, play VR without spending \$1,800+!

# MAKE NEW INTROADS

## BUST'A WORM FOR HTC VIVE

Play with your words... and Bust'a Worm!

Bust'a Worm has achieved Steam Greenlight! That's pretty impressive, but when you have some of the most advanced technology at your fingertips, the opportunity to innovate games is yours for the taking. A team of UAT Game Studios students developed this indie VR game for the HTC Vive during one of UAT's 48-hour Game Jams. The style is a blast to the past for gamers who remember playing the old arcade-style games. Take on different enemies as you jump, move, attack, and try to get the high score. Explore the different stages and types of enemies throughout the game. Use voice commands like "Spike", "Fire", and "Ice" to enhance the virtual experience. Feel the power when activating elemental weapons and navigating the game. When you are a game studies student at the UAT, you know you've found your calling and your place at the only University to be referred to as the "Julliard of Technology," a craft we strive to perfect. Check out our Game Studies degrees in Game Design, Game Art and Animation, Game Programming and Game Production Management.

[uat.edu/majors](http://uat.edu/majors)



## MAYOR TESTS OUT UAT TECHNOLOGY

Bust'a Worm was tested out by a local dignitary recently. Tempe Mayor Mark Mitchell came by UAT to learn more about UAT's Virtual Reality degree, to meet students Ryan McDonald and Kenneth Vorseth, and to test the game in their innovative VR head mounted display (HMD) unit, a product they have been innovating all semester with the goal of bringing the finished version to the consumer market. The mayor was preparing for his State of the City Address in which UAT was an integral part since the technology University is a tremendous force in educating tomorrow's technology leaders. Industry leaders and UAT students know that VR is the future of technology.

In Tempe, the state of Arizona and throughout the country, UAT students are forging the path of technology innovation.

Learn more about the future of VR and the degree to lead the way.

## VIRTUAL REALITY DEMO AT CITY HALL

UAT displayed virtual reality to business professionals at the Tempe State of the City Address last December. Participants demonstrated the VR HMD headset with instruction by Professor Derric Clark, and students Kenneth Vorseth and Ryan McDonald who created the VR headset as a cost-efficient alternative to the high-priced models.

Tempe Mayor Mark Mitchell was impressed by the level of detail put into these projects, and the passion for technology that oozed from each UAT student he came into contact with on campus. The mayor's address provided a unique opportunity for the public to get an update on what's going on, what's new, and hear the mayor's thoughts on the local social and economic climate along with his vision for the growth and future of Tempe and Arizona. As a tech leader in higher education, UAT is educating and priming new problem solvers in technology, locally and worldwide, to change the future of virtual reality, game design, cyber security, digital video, robotics, computer science and more.



# HAPPY SKIES!

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*High Flying  
Adventure!*

## TRAVEL THE WORLD IN A 2D GAME WITH 3D SPACE

Happy Skies is a 2D mobile game built in a 3D space that incorporates the use of stealth learning concepts to entice younger users to learn about foreign cultures.

This Student Innovation Project is a great example of a concept that evolved into something bigger than was originally intended. That's the power of innovative thinking at UAT. Happy Skies started out as an attempt to make a kid-friendly mobile game that would appeal to a large audience. As time went on, Team Happy Skies realized that the multitude of cultures represented in the game could be educational. They decided to apply underlying learning concepts to interest young players in learning about other cultures.

In this high-flying mobile game adventure, kids take a balloon ride to visit famous landmarks throughout the world and learn more about other places, cultures and events. Adopting the character of a child or animal, kids float around the world and interact with landmarks in the background unique to whatever region of the world they are in to earn points, coins and unlock new characters to play as such. The player controls the wind to push their character around to avoid enemies while interacting with objects in the environment. The cast of characters each have their own special abilities to help the player get as far around the earth as they can.

As players explore regions of the world, they can unlock an interactive map giving them information about the landmarks they have seen.

Visit the Great Wall of China and learn why it was built and what it kept out. Fly over the Parthenon in Athens, Greece while discovering what it is and what it stored. These adventures spark curiosity in a fun and engaging way. By presenting these landmarks to kids, but not forcing them to learn, they are encouraged to seek out information on their own, which Team Happy Skies believes is a better way to inspire learning in an entertainment medium.

Happy Skies was released in Google Play beta on the market. For more information and to register for the Google Play beta, visit: [uat.edu/happyskies](http://uat.edu/happyskies)

Learn more about UAT's Game Development degrees. Better yet, come see our Game Fridays in action!

## READY SET GO »

**APPLY NOW!**  
[uat.edu/apply](http://uat.edu/apply)

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

- > Considers you for more scholarship opportunities
- > Notifies you of scholarship eligibility when you apply
- > Reserves your spot in the dorms
- > Assures you better class choices
- > Provides you access to your Admissions Advisor
- > Connects you with campus events and student news

### WHO'S ADMITTED TO UAT?

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

### SO... WHAT'S NEXT?

Prospective students can apply online at [www.UAT.edu/apply](http://www.UAT.edu/apply). Admissions requirements and the online application are both found on this page. Soon after your application has been received and reviewed by our Acceptance Committee, you will be notified of your acceptance status. If you need help or advisement with the admissions process, or if you just have questions, please contact our Admissions Office at 800.658.5744.

**FALL 2017 SEMESTER**  
September 5 — December 19

**SPRING 2018 SEMESTER**  
January 8 — April 27

**SUMMER 2018 SEMESTER**  
May 7 — August 17

**APPLY**

**uat.edu/apply**

# HTC VIVE FOOT MOUNT

Fancy Foot Work, UAT Style

With the capability of turning a room into a 3D space via sensors, the HTC Vive VR headset gives us the ability to use motion tracked, handheld controllers to manipulate objects, interact, communicate and experience immersive environments.

Pretty cool, but what if you want to interact with your feet? UAT students are encouraged to think outside the box, and that's exactly what they did. They created a foot mount prototype for the HTC hand controller.

"Our idea came from using the HTC Vive that the school owns," says UAT student Jersey Calderwood (Game Programming). "We were trying to think of ways that we could use the Vive that no one has done. We came up with the idea of playing soccer," he added. "We refined the innovation down to the mount that the controller will sit in."

That's why their project has two parts – the Foot Mount prototype they created for the HTC Vive controller, and a soccer game to demonstrate. The team designed a mount that fits over shoes and holds the controller in place. They had to consider several things in their design, namely that the controllers are not in danger of being damaged. They created the mount using 3D printing and standard craftsmanship. The game and foot mount are not yet complete and continue to be refined.

While the idea of foot tracking is not new, the project's innovation is. Rather than purchasing a separate foot tracker, the hand controller can be adapted to your feet. This opens up a whole new world of opportunities for developers to create games and concepts that utilize feet tracking. The physical mount was 3D printed, which made the project both physical and technological. Plus, a game was created to accompany the foot mount. When your feet can be tracked, it allows for more sport-themed games, or even beyond for more therapeutic uses like physical therapy.

This idea could potentially spark a new type of controller/tracker that can be developed for this technology and manufactured officially.

How does the foot mount work? With a fairly simplistic design, the hand tracker slips into the mount, then the mount is velcroed around the shoe, which in turn also secures the tracker in the mount. You might think the shoe/foot/mount would block the tracker's connection to the Vive sensors, but after plenty of testing, this wasn't an issue. Programs used included: Autodesk, 3DS Max, Unity, Substance Painter.



## TEAM

Zakari Kaszubowski  
Lead Environment Artist  
(Game Art and Animation)

Jersey Calderwood  
Programmer  
(Advancing Computer Science/  
Game Programming)

TJ Tapia  
Environment Artist  
(Game Art and Animation)

Greck Santiago  
Programmer  
(Robotics and Embedded Systems)

# HOT COURSES GIVE YOU A COOL EDGE

If you're looking for the latest and greatest in technology trends, here are some of the hottest summer courses, beginning July 19, that may catch your eye at registration:

- To explore the different facets of technology, you can choose from these courses taught by Professor Nathan Eskue:
  - MG425 Trends in Business Technology and SCI330 Green Technologies.
  - Then there's TCH301 Ethics in Technology, an important course indeed as technology becomes a more integral part of our daily lives.
  - Inquiring minds want to know more about the power of memory and how it impacts technology, so take a look at SPT323 Memory Analysis.
- For programming enthusiasts, another cutting edge course to look at is C/C++ Programming II, taught by Professor Jill Coddington.
- Because communications are integral to every technology profession, consider Professor Gerald Bohulano's COM226 course.
- To get your game on, step into the exciting world of games and how they're made in GAM125 Introduction to Game Development taught by Professor Derric Clark.
- Learn about bringing new innovation to the marketplace in BUS200 Entrepreneurship to Market, a new core class taught by Professor Mark Smith.
- For cyber security, look at CFR315 Video Forensics and NTW455 Modern Data Center and Cloud Computing Design.
- For computer science, look at CSC343 Big Data Essentials and SPT323 Mobile Development for iOS.
- Other new courses include SPT323 Sculpting for Game Art and offerings such as HUM305 Countercultures and HUM388 Gothic Literature.

**Learn. Experience. Innovate.**

Important information about the educational debt, earnings, and completion rates of students who attended these programs can be found at [www.uat.edu/fastfacts](http://www.uat.edu/fastfacts).

## DEGREES

### ON CAMPUS:

Advancing Computer Science  
Artificial Life Programming  
Business Technology  
Digital Maker and Fabrication  
Digital Media  
Digital Video  
Enterprise Software Development  
Game Art and Animation  
Game Design  
Game Programming  
Human-Computer Interaction  
Network Engineering  
Network Security  
Robotics and Embedded Systems  
Technology Forensics  
Technology Studies  
Virtual Reality  
Web Design

### ONLINE:

Advancing Computer Science  
Game Art and Animation  
Game Design  
Game Programming  
Network Security  
Technology Forensics  
Web Design

### MASTER OF SCIENCE:

Advancing Computer Science  
Game Production and Management  
Information Assurance  
Technology Leadership

[uat.edu/apply](http://uat.edu/apply)



## QUICK ANXIETY KIT

You're going to be okay, friend!

That's the reassurance the Quick Anxiety Kit provides in this Student Innovation Project that can be a much-needed extended hand of support when anxiety occurs.

It's staggering! According to the Anxiety and Depression Association of America (ADAA), about 40 million people between the ages of 18-54 are affected with anxiety in the U.S. alone. Of those people, roughly only 10 percent will get the effective help that they need.

Quick Anxiety Kit is an app, which can be downloaded for free to help people who experience anxiety or panic attacks by using artistic components shown to have calming effects. These components include the color scheme, pictures, videos and a mini-game. The app will track when the user typically feels anxious and give them a reminder that the app is there when they need it and applaud/encourage them when they have had their anxiety under control for some time.

Tappy Cat is the game within the app, designed to replicate a type of psychotherapy, called EMDR, which is used primarily to help work slowly through the trauma with the guide of a therapist. It also works without the guide of the therapist by replicating rapid eye movement that occurs while sleeping, which can help calm the body and mind.

A free, interactive user tracking feature also helps individuals and caregivers keep track of anxiety episodes and which options on the app they are using. Choose from five different options: the breathing app, EMDR game, music player, check the user statistics, and Change the Settings.



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### TEAM

Ashley Casarrubias  
Project Owner (Game Art and Animation)

Kayla Godard  
Lead Artist (Game Art and Animation)

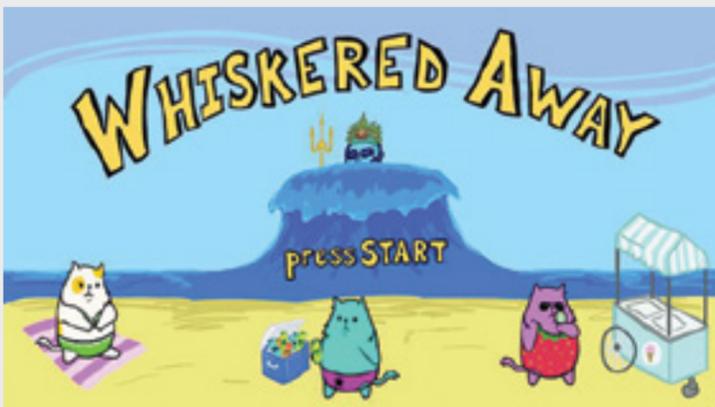
Leighan Godard  
Lead Designer (Game Design)

Nicholas Diley  
Program Manager (Advancing  
Computer Science/Network Security)

Zach Beauchamp  
Lead Programmer  
(Advancing Computer Science)

David Engleman  
Game and UI Programming  
(Game Design)

ISSUE 8



### TEAM

Kenny Ryan  
Game Designer (Game Design)

Audrey McEvoy  
Artist (Game Art & Animation)

TJ Tapia  
Artist (Game Art & Animation)

Noah Stumpf  
Programmer (Game Programming/  
Advancing Computer Science)

Jersey Calderwood  
Programmer (Game Programming/  
Advancing Computer Science)

## WHISKERED AWAY: GLOBAL GAME JAM WINNER

The road from idea to GDC is an exciting one. Just ask a UAT Game Studios development team that created Whiskered Away, a multi-player, asymmetrical, 2D party game, at Phoenix Global Game Jam last January. And won! Plus, it was named Game CoLab game of the month for February. Whiskered Away won the Game Jam's grand prize, passes and a booth at the Game Developers Conference in San Francisco last February.

Whiskered Away takes place on a beach with cute, colorful cats who are collecting shiny coins in a treasure that belongs to Poseidon. The cats must avoid Poseidon's wrath as he throws waves at the cats trying to pull them out to sea. If the cats are successful in collecting coins, Poseidon will be teased by some bratty, laughing dolphins.

At the present time, four wired Xbox 360 controllers are needed to play this build, but the team is working on another build to make Whiskered Away more accessible to players.

During their first build in just 48 hours at Phoenix Global Game Jam, the team used the Unity engine and the art assets were created in Photoshop. Their main focus was to make a game that was fun and that the developers themselves would enjoy playing.

"We had a very relaxed approach to development with no specific hierarchy or team leads," said Audrey McEvoy (Game Art & Animation), team artist. "When making gameplay or aesthetic decisions, everybody on the team had a voice."

At GDC, the team not only got to show off Whiskered Away, but also their own portfolios as professionals. They worked hard to prepare for their visit, creating an updated bug-free build with two new levels and more thoroughly balanced gameplay. Because GDC gave them an opportunity to pitch Whiskered Away to publishers, the team also prepared a production plan for turning Whiskered Away into a full game with several different gameplay modes, similar to something like Mario Party or Move or Die.

Read more about how to download and play the team's 66J2017 build:  
[uat.edu/whiskeredaway](http://uat.edu/whiskeredaway)

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