# IN THE LOOP

**DEPAUL UNIVERSITY**
COLLEGE OF COMPUTING
AND DIGITAL MEDIA

A publication for College of Computing and Digital Media alumni

**CDM students designed interactive games for The Wabash Lights, an art installation under the 'L.' Read more on page 10.**

# CHANGING WITH THE TIMES

**Dean David Miller reviews new developments at CDM**



**T**he College of Computing and Digital Media (CDM) prides itself on a curriculum that stays current with changes in our various fields of instruction. Two areas we've been watching recently are makerspaces and the "internet of things."

Makerspaces facilitate tech-driven, do-it-yourself (or with others) development of devices. The internet of things—devices interconnected by network to allow communication and control—promises new modes of interaction between computing and the physical world. Cheaper, smaller devices and advances such as 3-D printing mean that the design, creation and programming of these devices can be moved into the hands of all.

These areas are not new to us. We offered robotics courses as far back as the 1990s. We started teaching mobile app development around 2000 (remember Palm Pilots?). In recent courses, students have designed apps to detect distracted drivers and worked on smartphone sensors for health- and fitness-related apps. Three years ago, we created a physical computing lab to begin developing devices; a robotics course and multiple sections of "Hardware Projects for the Raspberry Pi" (a credit-card-sized computer) have been hosted there. One of our newer minors, designing for physical technology, explores practical applications, including the design of exhibits,

digital fabrication tools, clothing, robotics and interconnected objects.

This fall, we made significant commitments to both makerspaces and the internet of things. We opened a 4,500-square-foot makerspace, the Idea Realization Lab (IRL), on the third floor of the Daley Building at 14 E. Jackson Blvd. With an emphasis on community and student-driven learning, the IRL houses 3-D printers, laser cutters, circuit board printers and table saws, among other tools.

We've also launched a BS in cyber-physical systems engineering program to prepare students to engineer systems that integrate physical processes, computation and control. Befitting an engineering program, it has rigorous math and science requirements and a focus on building systems based on theoretical foundations and fundamental engineering design principles. To support this program, a new engineering faculty member joined us this fall: Isuru Godage has a PhD in robotics, cognition and interaction technologies from the University of Genova. His interests include compliant manipulation, minimally invasive surgical robotics and soft-legged locomotion.

We look forward to telling you more about these developments in a future In the Loop.

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# A TRIPLE WIN

## Students lend their talents to industry leaders through the iD-Lab

**F**or the students working tirelessly in a lab on the seventh floor of the CDM Building, real-world experience isn't an abstract phrase or something to put off until after graduation. As employees of the Innovation Development Lab, more commonly known as the iD-Lab, these students spend 10–25 hours per week engaged in research, data analytics, software engineering, business analysis, user-centered design and prototyping for major corporations.

Associate Professor Olayele Adelakun, executive director of the iD-Lab, modeled the idea after similar partnerships he saw between universities and technology companies in Silicon Valley. The lab launched last year and already counts Allstate, Bosch, CareerBuilder, DigitalMint and Here among its clients. The board of advisors includes representatives from Abbott, Deloitte, DragonSpears, Just Good Advice and Joyus.

Daniel Smith, a master's in information systems student, was hired in February as a web developer. In addition to building the lab's website (**depaulidlab.com**), Smith assisted with a project for CareerBuilder. Nondisclosure agreements and intellectual property laws prevent Smith from revealing many details, but he explained that CareerBuilder wanted to find a new way to visualize their data. Smith worked in conjunction with iD-Lab data analysts to come up with a promising solution for the company.

Before he entered graduate school, Smith was a teacher, and that experience shaped his understanding of the lab's mission and purpose. "I've never liked the idea that academics exist in an ivory tower," he asserts. "I think we really do need to focus as a university on preparing students for the workforce, and DePaul does that by giving students the tools they need to succeed. That's what this lab does."

His co-worker Yiqi Niu, a master's in predictive analytics student, feels more confident about her resume and skills now that she's worked in the iD-Lab as a data analyst. "It's different from homework and class projects, which often have instructions and methods to follow," she notes. "In the lab, I have to figure out for myself which technique or method to use." While the experience is challenging at times, she believes it will give her a leg up as a job candidate in the future.

So far, five of the lab's alumni have translated their real-world experience into real-world jobs; two of the five were hired by CareerBuilder. Apart from the project teams, students also gain valuable networking opportunities through guest speakers, happy hours and conferences. "We've met some really cool and diverse people at companies I could see myself working for," Smith says. "Allstate, Morningstar, DigitalMint—these are important industry leaders."

While it's clear that the student employees benefit from these partnerships, the companies are equally satisfied. "They have innovative ideas in their product backlog that they don't have time to invest in, but by prototyping their ideas, we give them a head start," Smith says. He calls it a win-win-win: "It's a win for the student, it's a win for DePaul, it's a win for the company. I think it's a great model."

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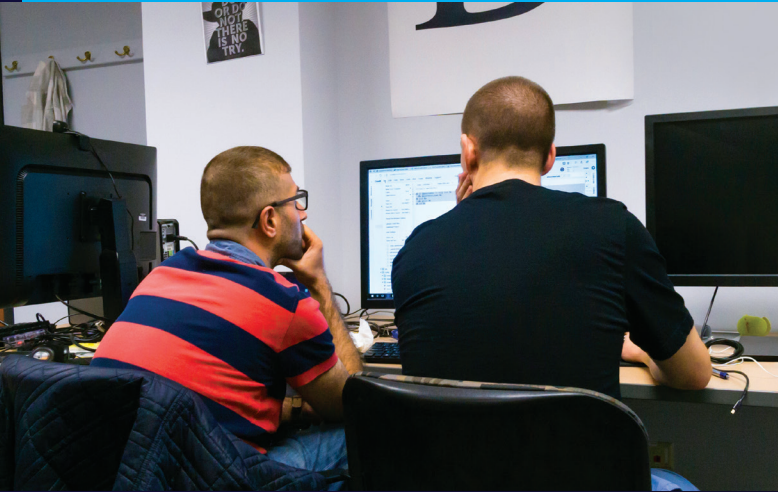


Students work on a project in the iD-Lab.

# A TICKET TO SUNDANCE

## Tracking a Double Demon's career change

At Sundance, Lewis Wise attended the premiere of "To the Bone," starring Lily Collins, Keanu Reeves and Lili Taylor, with one of the film's executive producers. Above, representatives from the film discuss the creative process. "This was part of the invaluable insider view I was privileged to have as a fellow," Lewis Wise says.

Keely Lewis Wise (JD '03, CDM MFA '17) had an epiphany on the morning of her 35th birthday. At the time, she was a successful lawyer with a happy marriage and two young children. But Lewis Wise also had a secret hobby as a screenwriter, and it loomed large in her imagination that fateful day. The encouragement and support she always gave her children suddenly seemed like a lesson to herself: "You can do anything. You can be anything you want to be if you work hard enough, set goals and put in the effort."

It was time for Lewis Wise to practice what she preached. Soon thereafter, she enrolled in DePaul's MFA in screenwriting program as a part-time student while she continued to work full time as a lawyer. Four years later, Lewis Wise achieved Double Demon status, accruing a number of impressive awards and accolades along the way.

Much of the fanfare has centered on her thesis script, "Plain Jane," a comedy about a newscaster with a salacious secret who must keep her past under wraps in order to achieve professional success. "Plain Jane" won the 2016 Best Feature Screenplay in Comedy at Premiere, the annual showcase of School of Cinematic Arts (SCA) student work. Lewis Wise says the film is fun and funny, but also has a lot of heart. To that point, she hopes "Plain Jane" can help challenge some of our culture's pernicious gender stereotypes.

Lewis Wise believes the script's "undercurrent of modern feminism" appealed to Cassian Elwes, who produced "Dallas Buyers Club," "Blue Valentine" and "Lee Daniels' The Butler," among other acclaimed films. After reading "Plain Jane," Elwes selected Lewis Wise for his annual Cassian Elwes Independent Screenwriting Fellowship, an honor that included an all-expenses-paid trip to the Sundance Film Festival in Park City, Utah. "He's a self-proclaimed feminist, and he's really trying to promote women as writers, directors and filmmakers in Hollywood," Lewis Wise notes.



Keely Lewis Wise at the 2016 Premiere Film Festival

The process of getting on Elwes' radar began a few months prior, in October 2016, when Lewis Wise uploaded her script to The Black List, an online network of film writers, buyers and representatives. The Black List asked to highlight the script on their site, and their team eventually passed "Plain Jane" along to Elwes. When Lewis Wise found out about the fellowship just after Christmas, she could hardly believe it.

Only three weeks later, Lewis Wise was hobnobbing with famous actors, filmmakers and Hollywood royalty at Sundance, an experience she calls "surreal." Elwes invited Lewis Wise and John Hoffler, a cameraman and fellow winner, to join him as he made the rounds of industry meetings and premieres, including the premiere of his own film, "Mudbound," which is already generating major Oscar buzz. "We got to be part of the entire process, including the bidding wars," Lewis Wise recalls. "It was incredible to have that kind of access to such a legendary filmmaker, and it was invaluable to see how the business is done."

Aside from the glitz and glamour, Lewis Wise was privy to some of the tougher realities of the business. "It did bring home the fact that it's very difficult to break into this industry," she acknowledges. "There's a lot of talent, and it's very competitive." She faces an additional challenge because she has no intention of moving to Los Angeles, where strategic networking often takes place. Nonetheless, Lewis Wise remains cautiously optimistic. "You've got to want it really badly, you have to put the time in and you've got to look at the long game," she asserts. "There are people who took the road less traveled and still made it, and I find that incredibly inspiring."

Elwes shared two pieces of advice with Lewis Wise: Keep writing and stick with it. "I think about that when I'm having days that are really hard and the writing's not coming easily," she says.

"A lot of people do give up." Lewis Wise is also balancing this burgeoning career with her own law firm, which focuses on intellectual property matters in the film industry. Luckily, she's accustomed to managing a full plate. When she was working on her thesis, Lewis Wise carved out time to write very early in the morning or late at night after her children were asleep. "It was tiring, but the more I have to do, the more I can usually get done," she says.

Lewis Wise has also found plenty of support among the SCA community. "My professors have been so helpful, both inside and outside the classroom, in terms of their contacts and sharing advice," she says. In particular, she singles out her thesis advisor, Assistant Professor Brad Riddell, for guiding her path. "I wouldn't have had any of the opportunities I've had so far if it weren't for him and his incredible teaching, but also his support and encouragement," Lewis Wise says. "DePaul professors don't just show up, teach and leave. They're cheerleaders for you all the way through."

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The road ahead is uncertain, leaving Lewis Wise both excited and nervous. She has already completed a second screenplay in the same voice and tenor as "Plain Jane," and a co-written script is also in the works. Earlier this year, "Plain Jane" was featured on the Popcorn Talk Network, a vodcast series that conducts table reads of unproduced scripts, and Lewis Wise's manager is working on generating additional interest, and hopefully funding, in Los Angeles.

"I wanted to be a writer coming out of college, but I didn't really know how to do it," she says. "Now, I've finally realized that every day I'm not taking steps to achieve my dreams is a lost day." Thanks to that attitude and an unrelenting work ethic, Lewis Wise is well on her way.

# Sporty Stats

## Alumnus helps professional sports teams understand their analytics

When it comes to sports and statistics, there's a lot more at play than the box score. Charlie Rohlf (CDM MS '12) is one of many individuals working at the intersection of professional athletics and big data. As a product manager at STATS LLC in Chicago, Rohlf oversees SportVU, a sophisticated tracking system that provides critical information for professional soccer and basketball teams, including all 30 NBA teams.

"SportVU is a camera-based computer vision system designed to detect the movements of the players and the ball during a basketball or soccer game," Rohlf says. The product generates an 'X' and a 'Y' coordinate for every player in the game 25 times per second, locating him on the court or field. SportVU also tracks the coordinates of the ball. "By the end of the game, we have more than a million data points for the movements of the players and the ball," Rohlf explains. "Then we have to make sense of all that data."

Software engineers apply a variety of data science techniques to pull out useful information. Using algorithms, they can detect shots, passes, dribbles and so on. Rohlf actually started as a software engineer when he first joined STATS in 2012, and that background, as well as his master's in computer science degree from DePaul, continues to help him succeed in his current role. Not only can he explain to a coach, scout or trainer what the data mean, but also he can translate the team's needs into terms the software engineers understand.

This fluency in both worlds started when Rohlf was an undergraduate at Duke University. He worked as a manager on the basketball team for four years under legendary coach Mike Krzyzewski. When Rohlf accepted the position, he was an engineering major, but during sophomore year, he switched to computer science. His interest and knowledge in technology soon proved to be an asset for the team.

"At the time, we were transitioning from recording games on VHS tapes to doing everything digitally using video-editing software," Rohlf says. "As I advanced in my degree, I also ended up helping with some programming and scripts to calculate our scouting statistics more efficiently."

Rohlf's passion for basketball and statistics continued when he enrolled at DePaul a few years later. DePaul appealed to him in part because the program's flexibility allowed Rohlf to continue teaching computer classes and coaching high school girls' basketball at Nazareth Academy in La Grange Park, Ill. For his thesis, Rohlf ran algorithms on footage from the academy's games, writing code to identify the basketball in the video.

It was a logical extension of his CDM courses in computer vision, which Rohlf describes as "teaching the computer to see." He found a mentor for this type of work in Professor Daniela Stan Raicu. "I owe a tremendous debt of gratitude to her," he says, noting that he took all of her courses related to computer vision. "I learned so much, and I loved every minute of it."

Although he's no longer Raicu's student, Rohlf has returned to DePaul as a guest lecturer in her data-mining courses. "I'm always impressed with the caliber of the students and the quality of their questions," he says. Rohlf jokes that he doesn't have to be particularly interesting himself because the subject matter tends to catch people's attention. "Even if you're not a sports fan, it's easy to engage with this topic," he says. "As someone who loves sports in every form, I'm lucky to have a career where I get to think about the logic and mathematics side of it every day."

*Shortly before this issue went to press, Rohlf accepted a new position as senior director for basketball technology and analytics at the NBA.*

# TECHNOLOGY FOR TOMORROW

## Students predict the next tech trends

For many DePaul students, a world without the internet, smartphones, social media and dating apps is inconceivable. But their parents and grandparents can quickly conjure a time when pioneering technology meant color television or car phones the size of a brick. As the adage goes, the only constant is change.

With this seemingly endless tech boom in mind, two CDM students looked into their crystal balls to share their predictions for the coming decades. Earlier this year, they were among five CDM students named to the Illinois Technology Foundation's Fifty for the Future, which recognizes some of the top technology students in the state. It's worth taking note of their predictions; after all, these promising young scholars could very well be the next Jack Dorseys, Larry Pages, Sheryl Sandbergs and Meg Whitmans.

### What advancements do you anticipate seeing in technology in the next 10, 20 or 50 years?

"The exciting part about this is that I don't know. There are a few fields that are popular right now, like autonomous cars and artificial intelligence (AI) in general, but exactly how far they'll go is a mystery. There's always something new popping up, so I wouldn't be surprised if the hot technology everyone is talking about in 10 years doesn't even exist now. Personally, I hope that in the next 50 years we come up with far more advanced green technology and infrastructure because we're eating up the Earth's natural resources at an alarming rate.

"A fear I have is that in 10–20 years, automated technologies will be so advanced that common labor jobs will be wiped out. Ride-share and taxi drivers, factory workers and so many more positions are going to be eliminated by machines. The idea is great, but there needs to be a better way of implementing it all so the unemployment rate doesn't surge up."

*–Artur Oganezov, computer science major*

"While it is almost impossible to predict specific advancements in technology, there are many indications that a few broad technology categories will flourish and shape the technological landscape of tomorrow. AI is a very exciting area that is rapidly growing and is likely to become a part of our everyday lives in the next 20 years. From self-driving cars and automated manufacturing to chatbots and intelligent assistants, AI is likely to accelerate the way we work, transport ourselves and interact with machines.

"Along with a growth in AI, we are likely to see other related technologies advance as well. For example, Neuralink aims to build brain-machine interfaces that can directly connect with our brains and exponentially increase our brains' ability to communicate and process information. If successful, this could propel the human civilization into an era of rapid growth that is unimaginable now. We are also likely to see huge advancements in other technologies such as 3-D printing and virtual reality."

*–Sriram Yarlagadda (CDM MS '17), incoming doctoral student in computer science*
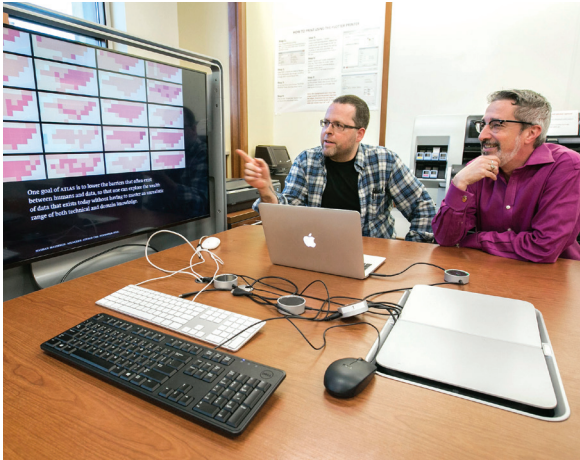
DePaul University/Jamie Moncrief

## FRUITFUL INTERSECTIONS

Studio Χ (CHI: Computing/Humanities Interface), a new collaboration between CDM and the College of Liberal Arts and Social Sciences (LAS), supports research at the intersection of humanities and computing. Faculty and staff from across DePaul are welcome to participate in workshops, such as "Wikipedia in the Classroom," or develop projects at the center. Possible collaboration areas include digital mapping, text and data mining, 3-D modeling and data visualization. The public is invited to attend the center's lecture series; visit **bit.ly/DePaulStudioChi** for more information. In this photo, Assistant Professor Nathan Matteson discusses a project with former LAS Professor Paul Jaskot, then director of Studio Χ.

## HEALTHY COMPUTING

In May, the Visual Computing Group and Upsilon Pi Epsilon, the international honor society for the computing and information disciplines, hosted a half-day biomedical and health informatics workshop. The event included a keynote speaker, presentations from industry practitioners, and student and faculty projects on topics such as revolutionizing medicine with machine learning and engineering the patient-provider experience.
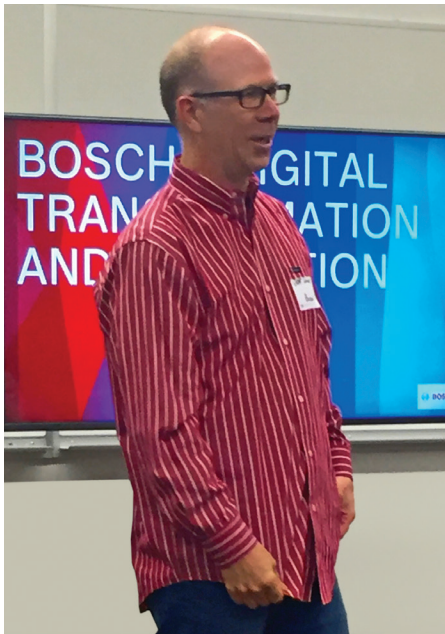


## INDUSTRY CONNECTIONS

Faculty joined together with industry professionals for the annual research mixer held each spring. Associate Professor Olayele Adelakun and Professor Xiaoping Jia shared examples of current collaborations with various companies, and Jeffrey Donne (left), director of digital business at Robert Bosch LLC, gave a keynote address. In addition to Bosch, representatives from Allstate Insurance, GE Transportation, Ingenuity, QuadraMed and World Business Chicago also attended the event.



## ANALYZING CHICAGO

Five research teams of MS in predictive analytics students presented projects to the Chicago City Data User Group Meetup at the Microsoft Technology Center in May. The Chicago-centered projects included a socioeconomic analysis of the city's crime, an application of algorithms to Chicago's housing segmentation and a representative model of texts and readers in the public library system.

## VINNY VALUES

Earlier this year, the Office of Mission and Values launched The Vinny Prize to promote an interest in Vincentian heritage. The cash prizes are awarded to students who create new, engaging and innovative content in a variety of social media highlighting the life, mission and values of St. Vincent de Paul, Louise de Marillac and the Vincentian tradition. Inaugural first-place winners Sarah Frost (LAS MS '14) and Brandon Ciarlo (CDM MS '11) received $5,000 for "A.C.T. Vincentian," second-place winner Charles Bottoms (CDM '17) received $3,000 for "Saint Vincent de Paul: A Man with a Mission" and third-place winner Lauren Major (CDM MFA '16) received $2,000 for "Fostering Connections." The winners were honored during the 2017 Premiere Film Festival, CDM's annual celebration of student filmmakers.



## MAKING AN IMPACT

Associate Professor Doris Rusch contributed to a panel on social-impact games at C2E2, Chicago's annual comic and entertainment expo. Later in April, she presented on the same subject at TEDxDePaul in her talk "Why Game Designers Are Better Lovers," which has nearly 20,000 views on YouTube (visit **bit.ly/TEDxDePaulDR**). Rusch drew on her recent book, "Making Deep Games: Designing Games with Meaning and Purpose," at both well-attended events.



DePaul University/Jeff Carrion

## BRAVO! BRAVO!

- Assistant Professor Anna Hozian's screenplay "Anchor Baby" was acquired by Lynmar Entertainment.

- The Princeton Review named DePaul No. 10 in its list of the Top 25 Graduate Programs in Game Design, while the undergraduate program in game design clocked in at No. 18 on its list of the Top 50 College Programs in Game Design.

- Ali Rizvi (CDM MS '10), a video journalist at McClatchy, was part of the 80-country team that won a Pulitzer Prize for explanatory reporting for the Panama Papers, an investigative project on offshore tax havens. As part of the project, Rizvi produced a video that illustrates the complex world of offshore banks and corporations.

- Variety named DePaul to its list of Stellar Film Schools in 2017, noting that SCA's presence at Cinespace Chicago Film Studios allows the school to "act as a pipeline to fill positions on the many productions at Cinespace, even before students graduate."

- Professor Radha Jagadeesan and five co-authors received the 2017 Alonzo Church Award for Outstanding Contributions to Logic and Computation from the Association for Computing Machinery Special Interest Group on Logic and Computation.

# CITY LIGHTS

## Designing interactive art under the 'L'

As the roar of the 'L' recedes, a Chicagoan walking nearby suddenly hops, skips and jumps across a colorful hopscotch pattern projected on the ground. This interactive visual game isn't a reality just yet, but it's one of many ideas workshopped by CDM students involved with The Wabash Lights, an urban art installation located just north of DePaul's Loop Campus. Stretching from Adams to Madison streets along Wabash Avenue, the initiative is intended to promote public engagement with the city environment.

The Wabash Lights were conceived by creative strategist and brand consultant Seth Unger (THE '04) and filmmaker and director Jack Newell. They envisioned placing 5,000 colorful, programmable LED light tubes on the underside of the 'L' tracks. In 2016, Unger and Newell approached CDM about collaborating with students, and the college agreed to create two design courses focused on The Wabash Lights' infrastructure for the winter and spring 2017 quarters. The first course offered students an opportunity to develop applications and concepts, while the second course focused on building prototypes of those ideas.

Jimit Shah, who is majoring in human-computer interaction, worked on the interactive projection team that created the hopscotch prototype. "We set out to design an interactive solution for The Wabash Lights that would be communal, energetic, engaging, fun and personal," he says. In addition to the hopscotch game, the group proposed four other games that use the light tubes in various ways. For example, another game pits four players against one another in a race to be the first to step on projected shapes; this movement activates the light tubes, visually illustrating which player is winning.

As the team worked on this prototype, they quickly learned the importance of usability testing. "A lot of our assumptions turned out to be wrong," Shah explains. "Designs are only a success if they satisfy the user's experience, and therefore, they need to be tested regularly." Shah adds that he became more adept at testing on-site, handling impromptu problems and coordinating with multiple partners throughout the course.

Working within a team helped Michael Estipona, a master's in human-computer interaction student, develop better communication skills. "Graphic designers understand best with pictures," he says. "I used stick figures to get my point across!" Another challenge was the 10-week time frame, which didn't allow much leeway in terms of implementing the project plan. "If we had narrowed down the scope a little, we would have had more time to get to where we wanted with our final product prototypes," Estipona notes.

Nonetheless, he was pleased with the concepts developed by the information visuals team. Both ideas use real-time, open-source data to alter the colors of the light tubes. One prototype drew on Twitter feeds to visualize people's emotions, while the other analyzed Chicago Transit Authority data to illustrate the path of incoming and outgoing trains. "I definitely honed my skills in UX research and project management," Estipona says.

Both he and Shah hope to remain involved in the project. "Technology can play a major role in entertaining people and beautifying a neighborhood," Shah says. "It was a pleasure using our education to give back to society."

> ## "TECHNOLOGY CAN PLAY A MAJOR ROLE IN ENTERTAINING PEOPLE AND BEAUTIFYING A NEIGHBORHOOD."

# COMBINATION ARTIST

## Meet a singing gamer with a passion for Japanese anime

Creativity is the connective thread that unites Jasmin Honeywood's academic pursuits. The senior from Joliet, Ill., is majoring in game development with a concentration in design and a minor in animation. Her passion for drawing and playing video games started in childhood, and she thought DePaul was the perfect place to combine these interests. "The creative process of animation, conceptual design and the production of games is no walk in the park, but in learning these processes, I've grown to love them even more," she asserts.

This enthusiasm extends to her extracurricular activities, including serving as vice president of the DePaul Comic and Manga Club, membership in the Japanese Media Appreciation Club and singing with The Fullertones, an a cappella group. "During my freshman year, like many, I was very hesitant to join clubs and was nervous interacting with people in a new environment," Honeywood says. "Now, I'm not sure how sane I would be without these communities!"

Indeed, her first years at DePaul already seem like a lifetime ago. Honeywood points to the many ways she's grown since then: "Professionally, I have a better grasp on the types of environments I thrive in, the type of work I want to do and how I can improve as an artist." In particular, she has found meaning in courses on deep games, a genre that explores the human condition and human experience. "These are games that have the potential to teach, inform or enrich some aspect of a player's life," Honeywood explains.

Honeywood sees the influence of deep game courses on her own life, saying she has an enhanced understanding of who she is and who she wants to be. "I know which values I want to put into the work I create," she notes. "I'm also more open than I used to be to different experiences and to meeting different types of people."

As she finishes up her senior year, Honeywood intends to keep her wide-eyed perspective and desire for knowledge at the forefront of whatever she does next. "My big dream is to be surrounded by people with whom I can learn, grow and create," she says. "As long as I am designing something, whether it be games or just simple art or animation, I will be content!"

*Support talented and motivated students like Jasmin Honeywood by making a gift to one of the funds below.*

## SUPPORT DePAUL UNIVERSITY

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# NEWS FLASH!

## NEW DEGREES!

This fall, CDM introduced three new graduate degrees and two new undergraduate degrees:

- **MFA in creative producing**
- **MFA in game design**
- **PhD in human-centered design**
- **BS in cyber-physical systems engineering**
- **BS in data science**

**Interested in obtaining another degree?** DePaul alumni automatically qualify for the Double Demon Scholarship, which covers 25 percent of the tuition for graduate degree coursework in seven of the university's colleges and schools, including CDM. Some restrictions apply.

Visit *go.depaul.edu/alumnischolarships* to learn more.