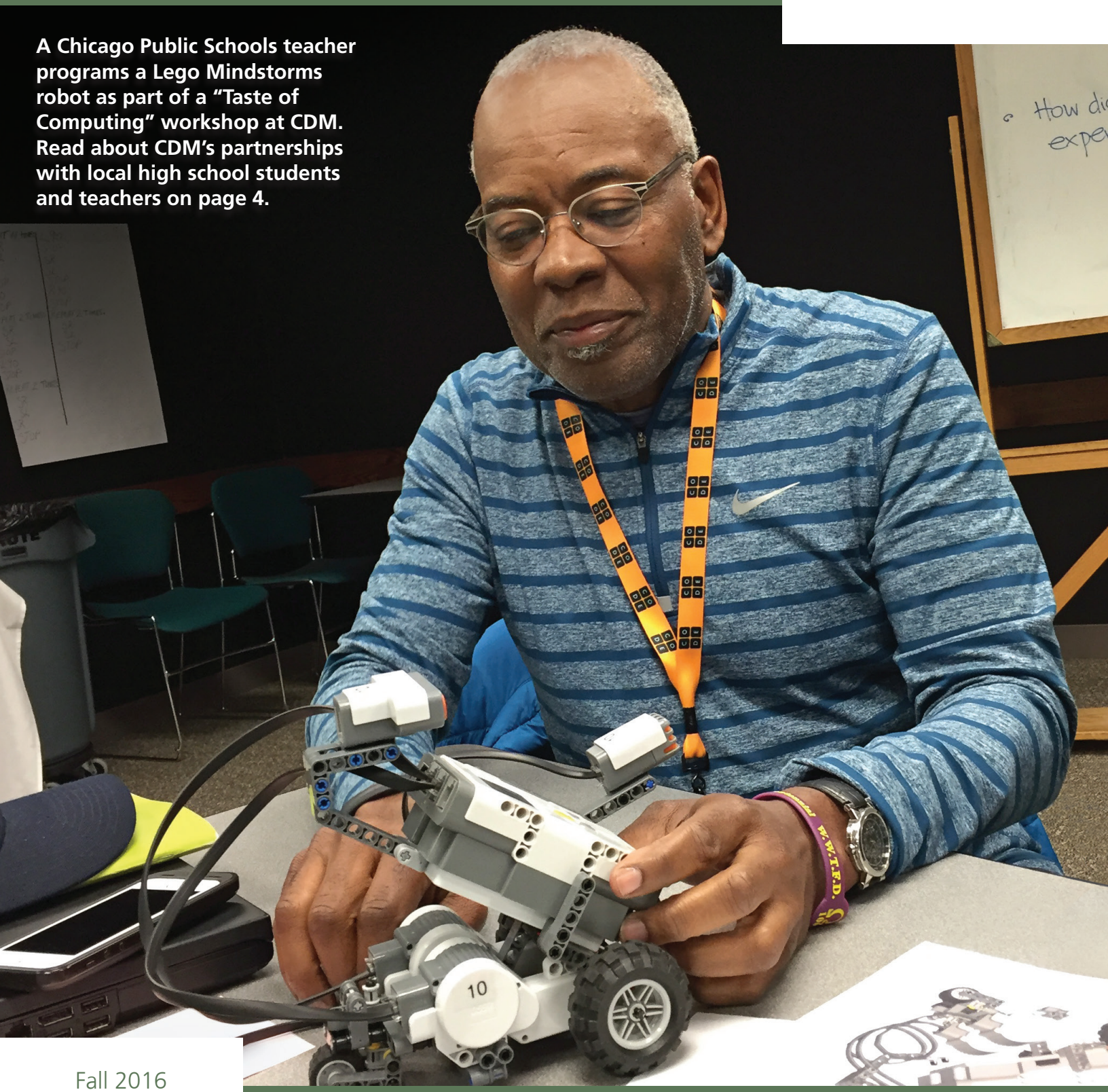
IN THE LOOP

A publication for College of Computing and Digital Media alumni

DePaul University
College of Computing and Digital Media



A Chicago Public Schools teacher programs a Lego Mindstorms robot as part of a "Taste of Computing" workshop at CDM. Read about CDM's partnerships with local high school students and teachers on page 4.

Fall 2016

IN THIS ISSUE

DEAN DAVID MILLER is celebrating 35 years at DePaul this year, and it's no coincidence that the Department of Computer Science is also marking its 35th anniversary. When the department was formed in 1981, Miller, a newly minted PhD from the University of Chicago, was its first outside hire. Thus, he has witnessed the transformation and growth of a fledgling computer science program into the robust interdisciplinary college that CDM is today.

Naturally, things have changed since Dean Miller's early days at DePaul. Today's students tweet, Snapchat and Facebook on smartphones. They take online courses and use advanced programs to create new worlds in digital film, computer gaming and animation. They practice cyber defense exercises, study legal issues in information assurance and conduct studies on human-computer interaction. Technology shapes their lives, and they all have digital footprints. But they share the passion for learning and drive to succeed that motivated those first students in the Department of Computer Science.

THROUGH THE YEARS

1981		2016
Part of the College of Liberal Arts and Social Sciences	**CDM**	CDM comprises the School of Computing, the School of Cinematic Arts and the School of Design
8	**FACULTY**	115 Full-time faculty (2016-17)
2	**DEGREE PROGRAMS OFFERED**	37 (see back page)
A few rooms on the fourth floor of the CDM Center	**SPACE**	CDM Center (nine floors); the second, fifth, sixteenth and basement floors of the Richard M. and Maggie C. Daley Building; the concourse of the DePaul Center; a soundstage at Cinespace Chicago; labs and classrooms on the Lincoln Park Campus
Approximately **630** computer science students in the mathematics department in January 1981, six months before the department launched.	**ENROLLMENT**	As of Sept. 7, 2016, a total of **1,184** students are enrolled in CDM for fall quarter 2016.
0	**NUMBER OF ONLINE COURSES AND SECTIONS**	596 (2015-16)
NEWS IBM introduces its first personal computer, the IBM Model 5150	**TECH IN THE NEWS**	Facebook's Oculus Rift, Apple's iPhone 7, Amazon's delivery drones, Microsoft's HoloLens POST
? What's that?	**SOCIAL MEDIA**	Popular social media apps: Snapchat, Facebook, Instagram, Twitter, Kik, Pinterest, Vine, Tumblr
Cloud	**CLOUD**	Internet-based computing and data storage
Multicast, auto-correct, undelete	**NEW TECH WORDS/PHRASES IN THE OXFORD ENGLISH DICTIONARY**	Redditor, spear phishing, blockchain (2015)

THE NEW ABCs

On the surface, literacy may seem pretty straightforward. The term usually implies proficiency in reading and writing, a definition that is easy enough to grasp. But Associate Professor Nichole Pinkard sees literacy in a more expansive and mutable light. According to Pinkard, being literate today means being fluent in the production and consumption of digital artifacts. Apps, blogs, computers—they're the new ABCs.

Pinkard is the founder of the Digital Youth Network, which supports organizations, educators and researchers in their efforts to develop effective digital media programs for youth. Earlier this year, Pinkard discussed digital media and literacy with Steve Kraske, host of "Up to Date," on KCUR 89.3 in Kansas City. Following are excerpts from that conversation.

ON LITERACY

What it means to be literate has always changed, and it's always been connected to the technology of our time. Before the printing press, literacy meant the ability to be able to orally recite. The printing press meant it was cheap to send books, so everyone learned to read. With the creation of the Internet, mobile and WiFi, it's easy to send videos, songs and sounds to each other almost as quickly as we can send texts. So in that sense, what it means to be literate is that you have to be able to create and consume those types of digital artifacts.

ON DIGITAL MEDIA

We focus on digital media and how students understand how to consume everything that they take in, but then also how to create it. How can they learn to represent their ideas and thoughts by creating all these different digital artifacts: a video, a game, a song, a visual representation, an app. At the same time, you can't be digitally literate unless you're traditionally literate. You have to know how to write. For example, to create a movie, you have to write a script, and if you don't understand story structure, you're not going to make a good movie. To write a song, you have to write the lyrics.

ON THE DIGITAL DIVIDE

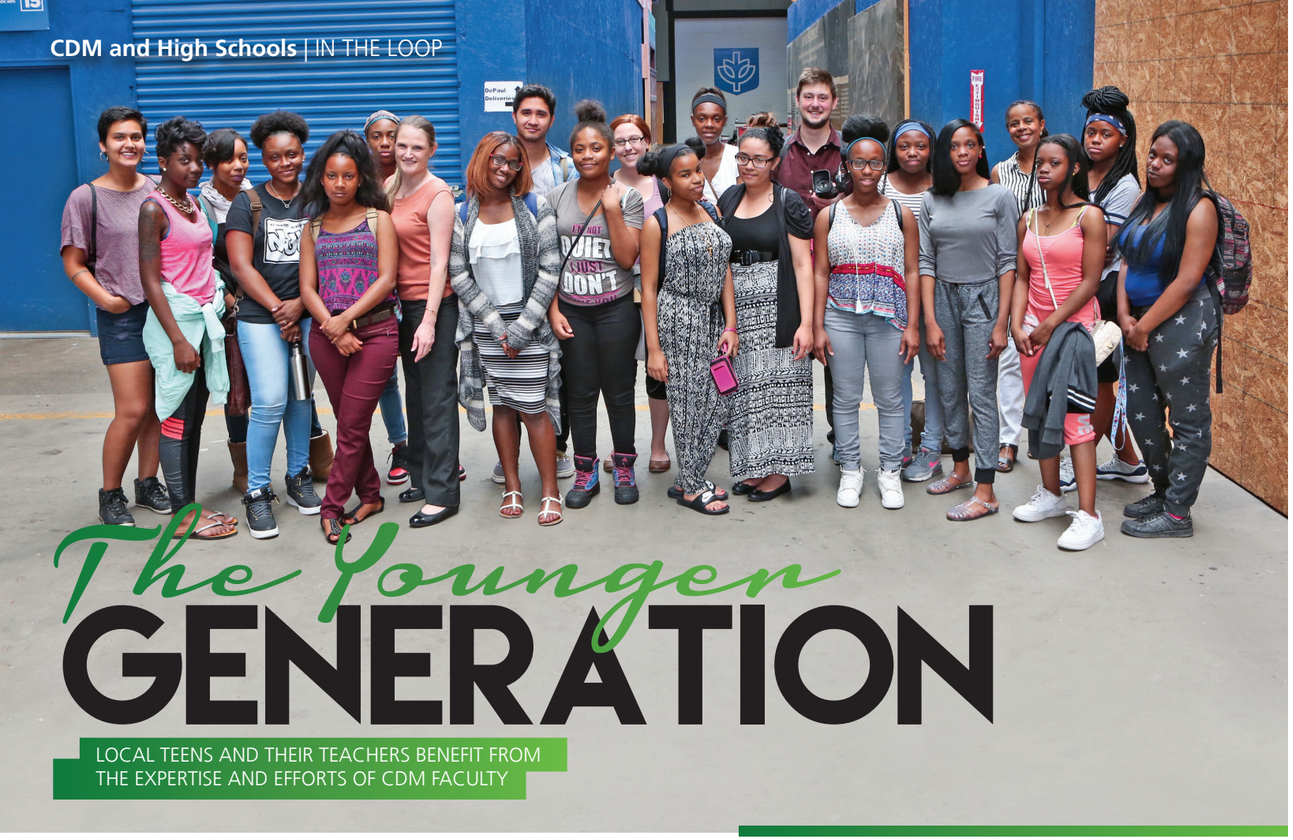
There is still a digital divide, but it's less about the technology and more about opportunities to participate. Many kids we work with have mobile devices, a PlayStation or a Gamebox that's connected to the internet or a computer. So they have some technological access, but they don't necessarily have access to programs and training that develop digital media skills. That's where programs like YOUmedia come in. (Pinkard was instrumental in the creation of YOUmedia, a technology-equipped teen learning space at the Chicago Public Library.)

ON EDUCATION

At YOUmedia, we're trying to help kids understand that what they do out of school has relevance to what they do in school. Then we work with schools and teachers to bring it all together. A lot of it is about how you integrate the instruction. So you have your writing teacher working with your media arts teacher. Students might want to work on story structure and content in an English or social studies class, and then they bring that with them to the digital media classes or YOUmedia. Our job is to make the possible visible and empower students to get there. That's why showcases are so important; they're opportunities for students to see what other students are creating.

ON THE DIGITAL FRONTIER

Think about how much media you consume on a daily basis across all your different devices. If we're not making the ability to consume and produce that media into a core literacy, for everyone, then we're handicapping our kids and we're handicapping our society.



The Younger GENERATION

LOCAL TEENS AND THEIR TEACHERS BENEFIT FROM THE EXPERTISE AND EFFORTS OF CDM FACULTY

The 'L' whizzing by, the horns of passing cabs, the clatter of high heels on the sidewalk—from the moment you exit the front door of the CDM Center, it's clear that DePaul is a university with an urban heart. Being in and of Chicago makes it possible for CDM faculty to forge fruitful partnerships with individuals and organizations throughout the city, including high school students and teachers.

COMPUTER SCIENTISTS OF THE FUTURE

Thirty states, including Illinois, currently allow high school students to count computer science courses toward graduation credits. But Chicago Public Schools (CPS) recently took this one step further: Starting with this year's freshman class, the successful completion of computer science courses will be required for graduation.

Lucia Dettori, associate dean and associate professor, knows better than most that this new stipulation was no small feat. As a member of the Chicago Computer Science Teachers Association, she collaborated with CPS teachers and faculty from area universities to bring computer science courses to high school students. When she joined the team, the National Science Foundation (NSF) had already rejected two proposals from the group. "I remember saying, 'Even if we don't receive funding, we have to do this project,'" Dettori recalls. "It was that important."

The team knew that teachers, students and principals don't always see the value of computer science, thinking it to be primarily a back-end, technical discipline. But computer science goes far beyond the technical aspects. "Computer science teaches you problem-solving, reasoning, abstraction, collaboration—these are highly transferable skills," Dettori says. Furthermore, there's a great need for computer scientists; computing jobs are the number one source of new wages in the United States.

In 2011, the team's proposal, "Taste of Computing," received a four-year NSF grant of $1,050,000 to support Chicago's implementation of the Exploring Computer Science (ECS) curriculum, a successful program out of the Los Angeles Unified School District that includes a comprehensive professional development component for teachers. The grant coincided with CPS efforts to revamp its career and technical education information technology program (CTE-InfoTech), providing the perfect opportunity to introduce ECS to high school students.

Meanwhile, teachers from a range of subject areas—English, math, library science—enrolled in the professional development workshops hosted at CDM. So far, more than 175 CPS teachers have taken the workshops. Of those participants, nearly half are women, and approximately 50 percent are Latino or African American.

These statistics are heartening for an industry still struggling with gender and race inequities. "The fact that society is diverse by definition, and what this field is creating is so pervasive in society, means we need diverse voices at every phase of design and implementation," Dettori says. Making ECS the foundation of the CTE-InfoTech program brought computer science to students who might not otherwise have been exposed to the subject. Indeed, more than 80 percent of the students taking ECS are Latino or African American, and more than 40 percent are women.

"Taste of Computing" workshop

Now the team is working hard to bring ECS to as many schools as possible. "This is a community effort," Dettori stresses. "One reason for our success is because we were able to build a community of stakeholders that spans teachers, administrators and universities." Next up, Dettori looks forward to implementing in-class coaching of novice teachers; earlier this year, she received a $935,000 NSF grant for this purpose.

MAKING MEANING

This past summer, CDM offered two inaugural, six-week programs through the Chicago Housing Authority (CHA) Summer Youth Opportunities network. All of the students reside in CHA public housing or came from families that receive supplemental rent assistance through CHA housing choice vouchers.

"ONE REASON FOR OUR SUCCESS IS BECAUSE WE WERE ABLE TO BUILD A COMMUNITY OF STAKEHOLDERS THAT SPANS TEACHERS, ADMINISTRATORS AND UNIVERSITIES."

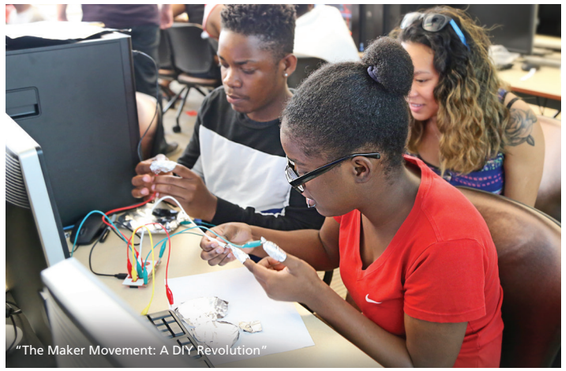
"The Maker Movement: A DIY Revolution" brought 20 high school students together for a contemporary industrial shop class. Instead of wielding saws and hammers, campers gained proficiency in microcontrollers, 3D printers and circuit-building breadboards. "We thought students could learn new skills, apply them in a creative way and share their talents with the community," says Associate Professor Theresa Steinbach (CSH '88, MBA '90, CDM MS '99, PhD '08), the camp's program director, who notes that the Chicago maker movement is very active.

In maker spaces, individuals creatively explore the intersections between technology, science, art and culture. During the shop class, students worked on a fashion-related project to create textiles woven with threads that conduct electricity. Other projects included building robots and turning everyday objects like bananas into wacky, usable touchpad keyboards.

Elsewhere in the building, 16 female high school students received a crash course in filmmaking during the "CHA Program in Documentary Filmmaking" summer camp (see photo on facing page). "The driving force of this program is to provide a voice to young women in Chicago on the social issues that concern them most," says Lecturer Liliane Calfee, program director. "We have an opportunity to positively impact some of Chicago's hardest-hit neighborhoods."

The students focused on such timely topics as bullying, teen pregnancy and local violence. Through the lens of the camera, they acquired not only valuable technical skills, but also a greater understanding of the power of media. "We believe that women, in particular, play a pivotal role in creating change," notes Calfee. "As a film school, one of our goals is to encourage diversity in filmmakers and help chip away at the large gender gap in the industry."

Both summer camps incorporated guest lectures from experts, field trips to relevant industry sites, team-building exercises, project showcases and graduation ceremonies. Additionally, CDM students and faculty provided mentoring and guidance throughout the programs.



"The Maker Movement: A DIY Revolution"

AND THERE'S MORE!

CDM offered several other summer learning opportunities in 2016:

- Girls Who Code gave 20 female high school students an introduction to the fundamentals of computer science.
- Digital Youth Divas brought female middle school students together to explore fashion through the lens of science, technology, engineering and math.
- CHA and Best Buy sponsored two Digital Youth Network (see page 3) Design Lab vans that traveled to libraries, parks and community centers to share programs on coding, Minecraft and DIY projects.
- More than 60 high school students from around the world participated in the ninth annual Game, Cinema and Animation Summer Academy, a weeklong program taught by DePaul faculty members that introduces students to the CDM college experience.

The Final Hurdle: Thesis Talk

"Research is formalized curiosity. It is poking and prying with a purpose." –Zora Neale Hurston

Forty-six students in DePaul's Honors Program acquired an intimate understanding of author Hurston's sentiments while producing thesis projects during the 2015-16 academic year. We asked three of the CDM students to share their research with In the Loop.

Zac Gross (CDM '16)
Computer Game Development
"Epic Videogame"

"My thesis project was to create a videogame that used the ideas of Brechtian Epic Theater. Epic Theater rejects traditional design principles in order to distance the audience from the piece, let them think critically about the subject and drive them to social action. Bertolt Brecht used his plays to criticize things like economic inequality, militarism, fascism and organized religion. I created a game that used the principles of Epic Theater to criticize religious indoctrination of children.

"Specifically, Epic Theater rejects catharsis (the empathy of the audience with the characters), organic unity (the wholeness and homogeneity of a work) and tectonic structure (the narrative structures and conventions that we expect). My game uses unconventional techniques, such as exposing the collision and content systems to the player, outlining the structure of the game at the start screen, including an intermission and ending abruptly, to emulate the techniques that Brecht used in his plays."

Thesis director: Assistant Professor Brian Schrank
Faculty reader: Assistant Professor Anna Souchuk
Postgraduation: Associate software engineer, NetherRealm Studios

Nina Cammarata (CDM '16)
Animation
"Creating Effective Horror in Project Brimstone"

"In this project, I researched what makes an effective horror game. This included analyzing topics such as the causes of fear, suspense and anticipation, artificial intelligence behavior, flow of information, color theory and more. All of these are contributing factors to an effective horror game, but I wanted to see which combinations produce the scariest experience.

"Most of these topics boil down to giving the player presence through clarity of the universe, situation and mechanics, with an emphasis on theme and ideas. Ultimately, my research showed that horror games are highly dependent on all aspects of the game being just right. Everything in a good horror game needs to contribute to what the developer is trying to achieve in terms of theme. When everything is set up in the right quantities at the right time, a significant emotional response is achieved."

Thesis director: Professional Lecturer Allen Turner
Faculty reader: Instructor Heinz Schuller
Postgraduation: Associate artist, NetherRealm Studios

Marissa Pauly (CDM '16)
Information Systems
"Women in Computing: Exploring the Gender Gap"

"Instead of doing a traditional written thesis, I created a website that explores issues and solutions surrounding the gender gap in computer science. My goal was to increase awareness, identify action steps and provide a resource on women's contributions to computer science, which are often forgotten or misrepresented. I researched design principles, computer science, the gender gap and potential solutions; wrote posts based on the research I conducted; and designed and developed a website using WordPress.

"The site's intended audience is parents, educators and students in middle school and high school who are beginning to think about their future career paths. Exposure to computer science in middle school and high school can have a big impact on students' decisions and perceptions about the field." Visit ***explorecomputerscience.com*** to learn more.

Thesis director: Assistant Professor Denise Nacu
Faculty reader: Associate Professor Roshanna Sylvester
Postgraduation: Technology analyst, JPMorgan Chase & Co.

Telling Stories in Cuba with Kiarostami

In January, 50 filmmakers from around the world, including SCA instructor James Choi, received the chance of a lifetime. Abbas Kiarostami, renowned Iranian director, screenwriter, photographer and producer, offered his third "Workshop for Auteurs," in Cuba. It would be the last of these workshops; Kiarostami died at age 76 on July 4. Here, Choi reflects on his time with Kiarostami (pictured above).

What was it like to work one-on-one with Kiarostami?

It was a bit surreal being in Cuba, studying under a filmmaker who's had a huge creative influence on me. He shared his own philosophy and approach to filmmaking, but, as he stated on our first day, he wasn't there to teach us about filmmaking; rather, he was there to help us realize our own approach. In the first four days, we explored our environment and developed story concepts while receiving constant feedback from Kiarostami. It was a close-knit, collaborative space where he was available from breakfast until late into the evening. Once we started shooting, we would run into him on the streets, because he would be out there as well, participating.

What did the workshop entail?

The 10-day workshop was held at Escuela Internacional de Cine y Televisión, about an hour outside of Havana in the small town of San Antonio de los Baños. The school was started by the acclaimed novelist Gabriel García Márquez, and its classrooms have attracted many of the greatest filmmakers around the world, which made it a fitting venue for this workshop. Kiarostami held formal masterclass lectures for our group and the entire school. Then our group went through the process of developing, writing and producing a short film under his tutelage. My six-minute short, "An Artist Life," focuses on a young painter who works as a barber and welder to support his art in San Antonio de Los Baños.

Did this experience change your approach to teaching?

It did. Unfortunately, in the U.S., we are almost forced to approach cinema as a "business" first. We tend to forget that in most parts of the world, cinema is still primarily an art form—in many ways, the most powerful of all art forms. It's imperative that we encourage one another to create freely and that we widen the diversity of voices beyond those we typically hear within the strict boundaries enacted by the business of film. This is something I hope to instill in my students. In Cuba, we didn't have tons of equipment, but we were able to create powerful art by getting to the bare essence of storytelling and by fearlessly approaching the process as a way of learning by doing.

You have filmed in Chicago, Los Angeles and Shanghai. How did filming in Cuba compare?

The biggest difference is that Cubans have such limited resources. They're isolated and on their own in many ways. People were not readily accessible via the internet or cellphones because technology there is so scarce. You're knocking on someone's door and telling them to meet you at 2 p.m. the next day by the tree, and then you hope they will show up! It was strange and difficult but also exhilarating to get off the grid and focus on what matters most in storytelling and filmmaking: character and story.

This piece was adapted and edited from an interview conducted by Kasia Kujawski (CMN '16) and Elizabeth Clements.

CYBER DEFENDERS

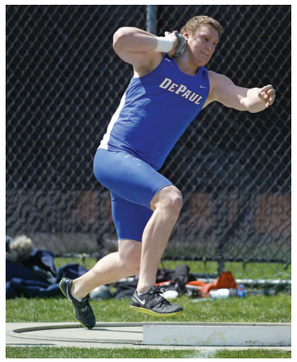
After winning the Midwest division of the Collegiate Cyber Defense Competition for the second consecutive year, the DePaul Security Daemons placed third in the national finals in San Antonio. The Security Daemons, who were ranked eighth at the midpoint of the competition, are the first Illinois team to place at nationals.

GAME PLAN

Savvy DePaul gamers have tapped into the power of crowdfunding to help launch their games. OmniBus was released in May after raising more than $8,000 from 313 backers on Kickstarter. The physics-style game about an unstoppable bus comes from two-man team Buddy Cops LLC and was published by Devolver Digital. Meanwhile, Vamped Games, composed of six DePaul students and alumni, surpassed their $10,000 goal on Kickstarter by more than $5,000. The studio plans to release Funk Unplugged, a game about repairing a broken world through good vibes, this fall.

OLYMPIC ALUMNUS

Tim Nedow (CDM '12), who majored in computer game development, competed for Team Canada in the shot put at the Olympic Games in Rio de Janeiro last summer. After winning the shot put at the Canadian Olympic Trials with a throw of 20.28 meters, Nedow went on to finish 16th out of 34 competitors at the Olympics.



A/V EXPERTS

CDM students assisted behind the scenes of the TEDxDePaulUniversity Conference in April, ensuring that the audiovisual components ran smoothly for the duration of the event. Presenters shared their St. Vincent de Paul-inspired "ideas worth spreading"—the TED organization's driving principle—on topics ranging from homelessness and racism to work-life balance. Watch the recordings at ***bit.ly/TEDxDePaul***.

NEWS FLASH

- Animation Career Review deems CDM's game design program second-best in the Midwest.
- Variety included SCA on its 2016 list of the best showbiz programs training the next leaders in film, television and media.
- The Page One Entertainment Writers Conference adopted a new name this year: the Courier 12 Screenwriting Conference.
- Assistant Professor Timothy Peternel served as executive producer on "Dog Eat Dog," a crime thriller starring Nicolas Cage, which screened on the closing night of the Directors' Fortnight at the 2016 Cannes Film Festival.
- Matthew Dominick (CDM '09), director of photography at Banner Collective, was named to the Crain's Chicago Business list of 20 in their 20s.
- Associate Professor Meghann Artes' stop-motion short "Sleepy Steve" was named a Vimeo Staff Pick less than 48 hours after its release. Watch it at ***bit.ly/SleepySteve***. Additionally, Artes received the 2016 Spirit of Inquiry Award from DePaul's University Research Council.
- Associate Professor Amber Settle was named board chair of the Special Interest Group on Computer Science Education, an international organization of computer science educators, for 2016-19.
- Soteria, an anti-anxiety game from the Play for Change lab, won a bronze medal at the 2016 International Serious Play Awards.

THE SOCIAL TECHNOCRAT

Andrew Ruginis (CDM MS '06) wears many hats as director of technology at the Portland Art Museum in Portland, Ore. There's the vendor management hat, the technical lead hat, the collaboration enhancer hat, the policy writer and enforcer hat, and the reducer of inefficiencies hat. "I have to know a little bit about a lot of different aspects of technology," he explains. "But my role is also about building relationships with colleagues across departments and empowering them to do their jobs better by using technical tools or eliminating technological barriers."

To accomplish his job to the best of his ability, Ruginis follows advice from a former colleague: Get out of your office and stroll the floor. Being visible and available helps him understand the technological challenges his co-workers face and provides insight into how the museum could be managing technical tools differently. Since starting at the museum in 2015, Ruginis has focused on eliminating redundancies, such as two departments paying separately for the same service or software.

"I focus on streamlining and optimizing, taking a scalpel approach to managing technology and equipment," he notes. In other words, he doesn't follow a one-size-fits-all philosophy. Rather than order the same computer for all 160 staff members, Ruginis considers the user's needs: Is the user a full-time or part-time employee? What kind of software does he or she need? How often is the user online? This strategic focus benefits employees and the museum in equal measure.

Ruginis especially enjoys guiding colleagues to new and better methods of working with technology. "Sometimes, employees have tolerated a way of doing something for months or years, and it's so frustrating to them," Ruginis says. "When I can see that and suggest an alternative, it's incredibly fulfilling."

He's also inspired by the larger community of cultural institution professionals. Before joining the Portland Art Museum, Ruginis worked in the technology departments of Chicago's Field Museum and the Chicago Architecture Foundation. Unlike other industries that guard technological secrets, the museum world is highly collaborative. If Ruginis is thinking about switching to a new vendor for a particular service, he'll often reach out to his colleagues around the world. "I didn't know about this aspect when I got into this business, but it's one thing that has kept me here," he asserts.

Though Ruginis majored in industrial engineering at Marquette University, he only ever interned in the field. Instead, he put his minor in computer science to use, diving into IT and not looking back. For graduate school, Ruginis sought a university with an "amplified dedication to technology" and found that DePaul fit the bill. "While other schools also had computer science degrees, I remember thinking, 'This is a bigger deal at DePaul.'"

Given that Ruginis spends his days immersed in technology, it's no surprise that he checks out during his downtime. "Basically, much of what I do outside of work and career has nothing to do with technology," he says with a chuckle. He likes to ride his bike, hike and spend time with his wife and two sons. Nonetheless, when Ruginis tells a new acquaintance his job title, he often gets a litany of questions about computers, social media, phones or printers. "Even though their expectation is that I'm a guru in anything they personally define as technology, I don't avoid them or shirk the question," he says. "I try to be as helpful as I can!"

CAREER ADVICE FROM ANDREW RUGINIS

- **On Specializing … Or Not**
  When you're picking a specialization in school, don't worry too much about your future prospects. I think sometimes people get caught up in worrying that they need to pick the "hot" specialization—whatever is big at that moment. But you probably won't focus in that area for the rest of your life, so the important thing is that you're able to adapt. Be mentally prepared to pivot, redevelop yourself and evolve into different specialties every few years.
- **On Becoming an Effective Manager**
  Developing the skill set to be an effective manager of direct reports can be challenging. There are so many varying philosophies and corporate cultures out there, and you may not have much lead time before you know you're becoming a manager. My insider's tip is to check out ***manager-tools.com***. It's the most inspiring, accessible and effective manager training tool I have found.
- **On Working in the Museum/Cultural Institution World**
  Technology in the museum and cultural institutions "industry" has an unexpected learning curve. It's not always a great fit for everyone, so museums/cultural institutions like to hire from within and generally prefer candidates who already have museum experience. The hardest part of this career path is getting that first job and committing to it, but once you are in and have performed well, you'll have relatively accessible opportunities to move around the country and world.

WHEN COMPUTING AND BIOLOGY COLLIDE

It's a long-standing proverb that two minds are better than one. So how about three minds? Two pairs of CDM faculty are putting this adage to the test, collaborating with two assistant professors from Rosalind Franklin University of Medicine and Science (RFUMS) on projects that combine their respective disciplines: computing and biology. Support from a grant program sponsored by the Alliance for Health Sciences, a partnership between DePaul and RFUMS, facilitates these interdisciplinary endeavors—modern-day meetings of great minds.

FOLLOW THAT WORM

Professors Daniela Stan Raicu and Jacob Furst brushed up on biology for their collaboration with RFUMS Assistant Professor Hongkyun Kim. "We hated worms for the first two years," jokes Furst, alluding to the difficulties of the project, which focuses on analyzing the movements of a one-millimeter-long worm, *C. elegans*, in the presence or absence of food.

Typically, cell biologists manually measure the head and tail movements of *C. elegans* during neurological studies, but the process is time-consuming and error-prone. Raicu and Furst knew there had to be a better way. With assistance from their students, the two computer scientists designed a tracker outfitted with a camera that follows the worm on its microscopic journey across a plate. They wrote both the software program that tells the components how to interact with each other and the program that analyzes the images. It's a daunting process: at 20 frames per second, each hour-long video generates tens of thousands of images.

"This is one of our hardest projects, because the data is very noisy," Raicu says. That "noise" includes building vibrations, plate movement and residual dirt on the plate; the digital analysis needs to take all these factors into account. After three years of trial and error, however, the team has made significant strides, and their paper on the project was recently accepted by the journal Computational and Mathematical Methods in Medicine. "Our tracker can analyze data over a longer period of time than was previously possible, which makes it easier to see patterns in the worms' behavior," Raicu asserts.

GETTING COMFORTABLE

For those who use prosthetic limbs, comfort can be a major challenge. "Limbs change over the course of a day," says Assistant Professor Jonathan Gemmell. "They might swell or shrink based on an activity, or muscles may fatigue if they've been going for a while." But what is the precise relationship between comfort and pressure? RFUMS Assistant Professor Noah Rosenblatt asked Gemmell and Professor Bamshad Mobasher to find out.

The prosthetic limbs used in Rosenblatt's lab feature adjustable pressure points that help ease friction and enhance comfort. As patients walk on a treadmill, they generate data through pressure measurements, electrocardiogram (EKG) muscle sensors and verbal feedback. These data are then fed into Gemmell and Mobasher's predictive model. "We can't change EKG because that's coming from the user, but we can change the pressure and affect the comfort that way," Gemmell says, though he notes that the pressure adjustment wouldn't be instantaneous. "It might take five minutes."

The project's implications go beyond comfort. "If the limb doesn't fit or if it's uncomfortable, that often means the person won't use it," notes Gemmell. "That might mean they're sitting down more often, not being physically active, and ultimately could have worse health outcomes."

Long term, the researchers believe their efforts could contribute to the creation of intelligent limbs that react to their user's behavior in real time. "Using the kind of model that we are learning to develop from these data, intelligent limbs would be able to automatically adjust pressure," Mobasher explains. "So if the user's behavior changes—for example, due to the way he or she is walking—the limb would automatically adjust. That's the ideal."

Meet Tori Meschino

CAMPUS LEADER AND ALL-AROUND SUPERSTAR

You wouldn't know it talking to Tori Meschino now, but there was a time during her freshman year at DePaul when she considered transferring. "I was anxious and not involved at all," she remembers. Instead of retreating further, however, Meschino threw herself into college life. By sophomore year, Meschino was a writer for the national online publication Her Campus, a member of CDM's female empowerment group HerCDM and a sister in the Chi Omega sorority.

When Meschino assumed leadership roles in these organizations, including serving as president of both Her Campus and HerCDM, she learned to help others shine. "Leading from the back comes from the idea that members of an organization have just as much passion and drive as the leaders do," she says. "They don't need to be taught how to lead; they just need an example and the freedom to find their own strengths." Meschino found her own strength as an empathetic listener, a skill she developed in CDM courses: "One of the lessons of my user-experience classes is to always uncover people's needs and let them inform your next step."

Somehow, Meschino finds time to balance her activities with a serious academic workload. In addition to her interactive and social media major with a concentration in development, she also majors in media and cinema studies in the College of Communication and is pursuing a minor in general psychology through the College of Science and Health. Meschino credits her sorority sisters with realigning her academic path, saying that her grades improved because this group of "strong, smart women" held her accountable.

Over the years, DePaul has become home. This truth hit Meschino hard during her junior year when her father passed away. "Without the community I have here and the professors who made sure I stayed the course, I would have been completely lost," she says. "This university genuinely cares about me. I'm not an anonymous person in a crowd of 4,000. I am Tori. I have always felt like I matter here. Even at the most challenging time of my life, my school had my back."

When she's talking to prospective students as a CDM Student Ambassador, those feelings are never far from her heart. "As soon as I made the decision to get involved and get to know people, DePaul gave me the opportunity to grow into the person I am today: confident, capable and world-ready," she says. "I like to think that through leadership positions, I'm leaving my own stamp on DePaul. The university has certainly changed me for the better, and I hope that I've changed it a little bit, too."

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